Barris Restyles–CORVAIR, FALCON, VALIANT

CAR CRAFT

JANUARY 1960
25c

ALL-NEW FIBERGLASS ROADSTER

SEE PAGE 30

National Champion Show-Car

DUAL EXHAUST
Legal or Illegal?

PART IV—OPEN GAS-FUEL CLASS 1/4 MIDGET ENGINES

ORDER BY MAIL — HONEST NEW ITEMS — ORDER BY MAIL

HONEST SOM-RAY SPUN ALUMINUM WHEEL DISC

Both Street Type with self locking rings and our famous Drag Wheel Disc with holes already drilled and complete with screws and lock washers.
14" 15" or 16"
Must Know Wheel Size
No. 49 Screw on Type Wheel Each $2.70
We Pay Postage on Screw On
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MOON GO WIND-UP KEY

Creates A Sensation Wherever You Go —
Big Heavy Chrome Plated Key with Mounting Bolt — For All Cars — Karts & Drag Machines
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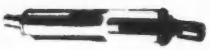
Our Mufflers carry a guarantee for the life of your car—we mean we replace it if it Burns out or Blows out—just return to us with your original invoice and we will immediately ship you another. Honest Glas-packs have that deep Bass tone that gives car a Power sound All Fords, Merc, Chevys', Cad., Dodge, Linc., Olds., Pontiac, and Studebakers



HONEST No. 32
each $5.95
PAIR $10.98
MUST KNOW CAR — Year — STD or AUTO trans

CHROME OUTSIDE TAILPIPES

Now in one complete package at a reasonable price — Kit Complete — Nothing Else to Buy — No welding necessary — mount along fender with simple tools — Stop discoloration of rear bumper and paint — must for station wagons — Packed in Pairs.
Complete Kit for Right and Left Side
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$9.95

MAKE WHITEWALLS OUT OF BLACKWALLS

13" - 14"
15" - 16"
Give Wheel Size
BEST QUALITY
$4.95 Set of 4
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HONEST PROGRESSIVE LINKAGE

Ball Bearing selective Progressive Linkage—replaces factory Vacuum set up on Chevrolet— Oldsmobile— Pontiac— triple carburator manifolds. All moving parts are ball bearing. POSITIVE ACTION — NO DELAY IN CUT IN OF SECOND AND THIRD CARBS. UP TO 70 m. p. h. ON ONE CARB.

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58-59 CHEVROLET REAR LOWERING KIT

Adjustable from 2" to 4" drop. Easily installed in minutes.
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Each Kit Complete $4.95
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LOWERING BLOCKS

For All Cars — with 2 Leaf Springs on Rear. Complete with U-Bolts. Kit:
to lower rear 2" - $3.95
to lower rear 3" - $4.50
to lower rear 4" - $4.95
State year & model Car
You Pay Postage

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SELECT-O-DRIVE

Combination Overdrive Selector and Hill Holder — Easy to Install —Makes 6 Forward Speeds out of Your Overdrive—Allows Clutchless Shifting, Automatic Hill Holder.

A MUST FOR ALL CARS WITH OVERDRIVE
HONEST No. 85
Complete Kit Ea. 4.95

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The Latest Craze From California
FUZZY MIRROR - MUFFS Made of Oh so Soft, Fluffy, Angora Type Fur. One Size Fits Nearly All Inside Mirrors

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No. H-4 EACH — $1.00
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HONEST SUPER FUEL BLOCK KITS

CHROME FUEL BLOCK
Complete With All Hose, Fitting and Clamps Necessary For Your Installation.

Your Choice of Clear, Red, Blue or Green. Top Quality Thick Wall Vinyl Hose.
HFB-2 Complete Kit For Dual Carb Inst. **7.95**
HFB-3 Complete Kit For Triple Carb Inst. **8.95**
HFB-4 Complete Kit For Quad Carb Inst. **9.95**
WE MUST KNOW NUMBER of Carbs, Kind of Car, Make of Carburators and Any Odd Fuel Pump Set Up.

HOT ROD STEERING ARMS

Use Late Spindles on Early Ford
NOW MADE FROM STRESS PROOF STEEL FOR ADDED SAFETY

CHROME PLATED
Each $7.25
CADMIUM PLATED
Each $5.25
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NEW FIESTA TYPE CHROME WHEEL COVERS WITH CHECK BACKGROUND

14" or 15"
For all cars — Replaces original factory type.

3 BAR SPINNER Heavy Construction. Space for Weights
Set of 4 $28.95
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Set of 2 $14.50
HONEST No. 41
(State size of Wheel)

6 - 12 VOLT CONVERSION

Complete Kit — Eliminates need for resistors, Replacement of starter, generator, instruments, etc., engine starts on 12 volts-Accessories operate on 6 volts.

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Each Kit Complete $8.95
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STOP BLANKIN ! ? BLINKING LIGHTS

Install an Honest Ammeter and Oil Pressure Assembly to replace the warning lights on your car. Know how much your battery is charging, know how much oil pressure you have. Kit consists of Oil Pressure Gauge, Ammeter Gauge and Chrome mounting Panel.
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HA2K $6.95
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He talks — he chatters — Slightest movement of car starts jaws to open and close with loud "Yackity Yack"—Brilliant Rhinestone Eyes gives eerie effect at night. Comes with hanging cord and rubber suction cup for easy two way mounting to dash—windshield or rear view mirror.
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Each $1.65
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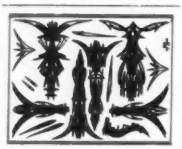

PINSTRIPING

12 Separate Designs Per Set
Colors: Red, Gold, White, Black
Each set of 12 Designs only $1.00 postpaid
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CROSS CHECKED FLAG 4-BAR SPINNER WHEEL COVERS WITH CHECKED BACKGROUND

14" - 15" - 16"

HEAVY CONSTRUCTION SPACE FOR WEIGHTS
HONEST No. 82
Set of Four . . . $29.95
Set of Two 15.00
State Size of Wheels

STAR FIRE SPINNER

For All Hub Caps—easily attached with screws
HONEST No. 77
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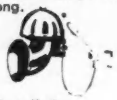
HONEST BULLHORN
It Moans — It Groans — It Bellows Like a Bull, Loud and Strong.



Simple Installation
HBH 6—For all 6 volt cars **each 12.95**
HBH 12—For all 12 volt cars say which **each 13.50**
WE PAY POSTAGE

HOLLYWOOD WOLF WHISTLE

Works on Engine Vacuum
$2.95 Postpaid
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EXHAUST CUT OUT DASH CONTROL

$2.95 Postpaid
HONEST No. 5

SPARK PLUG WIRE

ADD PEP TO ANY CAR
Clear Plastic or Transparent red clear plastic Spark Plug Wire.
Per foot 08
We Pay Postage
OHV V-8 Engines need 28 ft. F. H. Fords need 25 ft.

CHROME LOUVERED AIR CLEANERS

Gleaming Chrome with Copper Mesh Cleaning Element.

No. 84 Fits Chevy & Pontiac Rochester Carbs **EACH 3.95**
No. 85 Fits Fords, Mercs & All 2 5/8 Necks **EACH 3.95**
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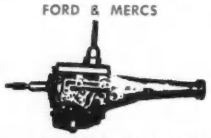
NEW FLOOR SHIFT CONVERSION KITS TO FIT 40-48 FORD & MERCURY — ALSO NEW APPLICATIONS FOR LATE MODEL FORD & MERCS



Complete Conversion Kit To Convert Column Shift On Cars listed Below to Floor Shift Operation.

HCH-2 1940-58 **CHEVY**
HFO-0 1940-48 **FORD MERC**
HFO-1 1949-54 **FORD** Std & OD
HFO-2 1955-up **FORD** Std &OD with side plates
HFO-3 1957-up **FORD** Std & OD with top plates
HME-1 49 Early 51 **MERC** Std & OD
HME-2 51-54 **MERC** Std & OD
HME-3 54-up **MERC** Std & OD with side plates
HME-4 57-up **MERC** Std & OD with top plates
HPO-1 58-59 **PONT** Except Interceptor Engine ALL ABOVE
Each 24.95

HOL-1 49-50 **OLDS EACH 26.95**
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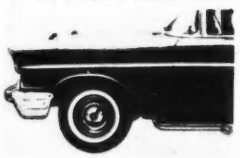
We Pay Postage

CHROME SHIFTING STICK AND BALL

22 inch Gear Shift Extension for above floor shift kits, May be cut off if too long.

Chrome Each **3.95**
Chrome Ball for Shifting Stick Ea. **2.25**

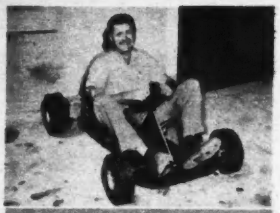
HONEST LAKE PLUGS FOR ALL CARS AT A THINKING MANS PRICE



Triple Chrome Plated 18 Gauge Steel Tubing
Direct Exhaust Escape with plates removed boosts power for competition running.
Packed in pairs, kits are complete with blocking plates, gaskets, chrome hangers, and all fasteners.
HONEST Nos.
HP28 Complete 28" Kit for both sides . . . **$ 9.95**
HP56 Complete 56" Kit for both sides . . . **$21.95**

HONEST CHARLEY SPEED SHOP INC. — USE ORDER BLANK ON INSIDE BACK COVER

Designed for Racing by Racing's Greatest



The Designer... FRANK KURTIS

Kurtis has designed more than 120 Indianapolis 500 cars, among them five of the last nine winners.

The Test Driver... RODGER WARD

Winner of the 1959 Indianapolis 500, Ward is now racing consultant for the Wildcat and Hellcat karts.

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WILDCAT

From the moment of conception, the best in design and consultation talent were used to produce the outstanding racing kart.....

The result----THE HELLCAT

Everything you want in a racing kart—speed, instant response, safety and endurance—you get in full measure in the HELLCAT. It's the hottest, sweetest handling kart going.

Meet All Requirements of AKMA and GKCA Championship Competition Regulations

With quick-change assembly units, the Hellcat can be converted for Class B competition. No other kart offers such flexibility.

$199.50

Slicks and upholstery optional equipment

Class B Wildcat

Instantly converted from basic Hellcat model, the Wildcat is the big threat in any class B competition.

$265.50

Slicks and upholstery optional equipment

With Clinton engines—slightly higher with West Bend engines.

SAFETY SEAL OF APPROVAL
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features

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cover

The two colorful "stars" of this month's cover are Bob Turgeon's '59 National Champion Sweepstake award winner, a T-Bird, and Ed Roth's "Excaliber," a T-styled roadster formed of fiberglass.
See page 20 and 34.
— Anscochromes by Broillier, Creitz

SPEAKING of the editor

THE THREE RATHER high spirited lads above are from left to right respectively — Bill Moore, Louis Stojanovich and Jim Doyle. Their elated condition is self-explanatory once you take a close gander at the large and beautiful silver bowl trophy that Bill Moore is clutching in the background. They are a committee of three representing the active Rod and Wheelers car club of San Jose, California, this year's recipients of CAR CRAFT magazine's annual "Car Club Of The Year" national award. As I expressed to these three young gentlemen at the time of presentation — I would like now to pass on to the remaining seventeen fellow members who were unable to attend the ceremony — *Congratulations* on your deserving award. A full report on the club can be found on page 38.

• • •

This month's issue brings to a close the four-part series of articles devoted to modifying the Continental AU7R engine for quarter midget racing. For four long years CAR CRAFT has been literally busting its seams to present such a series of informative features concerning standardization of racing specifications — but we have refrained from doing so. Why? Because four years ago there wasn't a worthwhile set of specs to publicize. They were either rules and specifications tailor-made to suit some individual's selfish demands or conceived of petty views on the part of a near-sighted association. Most associations during this time raced only in their own backyard so to speak, and members usually had the attitude of — to heck with it! Three years ago though, quarter midget enthusiasts removed their blindfolds. A new four division racing system was introduced and tested at the first Phoenix nationals. Although not perfect, before the three day meet came to a close participants realized that a basis for future compatible participation has been uncovered. The four racing divisions, somewhat streamlined and perfected since that time, have proven themselves to be the answer to national unification. All that remains to be accomplished is for quarter midget associations from coast to coast to adopt these rules and specifications. The classifications are such that any participant can arbitrarily select one of the four racing divisions, none is given preference over the other, and all are divided into both junior and senior groups assuring maximum fairness.

• • •

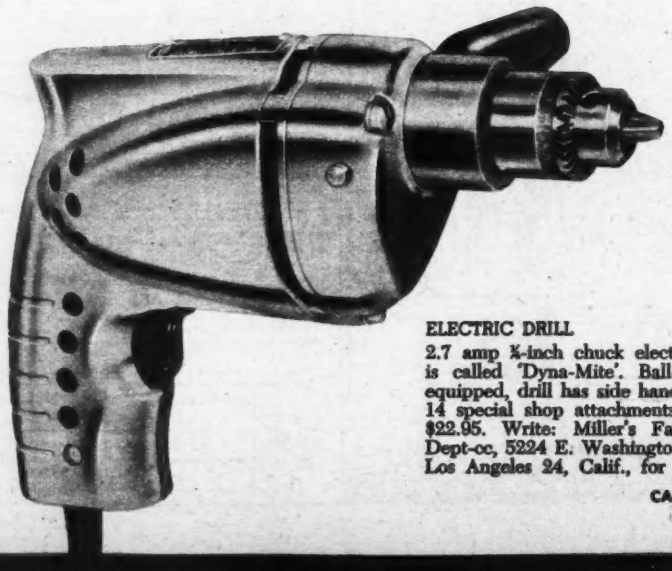
A peek at this month's masthead column and you'll discover a new addition to the edtiorial staff. To many of you longstanding readers the name Bud Lang will no doubt possess a familiar ring. And to you custom and hot hot rod enthusiasts of the Pacific Northwest, where Bud has served for the past two years as our representative, you will connect the name with a guy and a camera that usually came walking up your driveway before the fresh paint had a chance to set up on your new automotive creation, checking you out for a feature for the magazine. His recent transition from Rollei to Royal hasn't seemed to slow him down a bit. Proof will be his first editorial offering scheduled for next month where he lifts the lid on the very controversial subject concerning the potential of small two-stroke motorcycle engines for cart racing as compared to current chain saw models. The article promises to be a real introduction for the lad. Welcome aboard, Bud.

— Dick Day

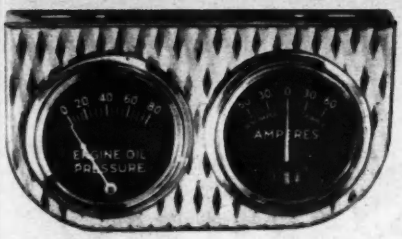
CC shops

UNIVERSAL LOWERING KIT
No need to remove front springs or cut coils with this new kit consisting of four lowering brackets, eight bolts, and four nuts for drop of two-three inches. Write: Fenton Company, Dept. cc, 3401 Pico St., Los Angeles 23, California.

CHECKERED FLAG
That's the name of this new kart, and company claims that's what you'll be receiving when you drive this Clinton A-460 powered cart. For details on $128.95 racer, write: Columbus Cycle Company, Dept-cc, Columbus, Nebr.

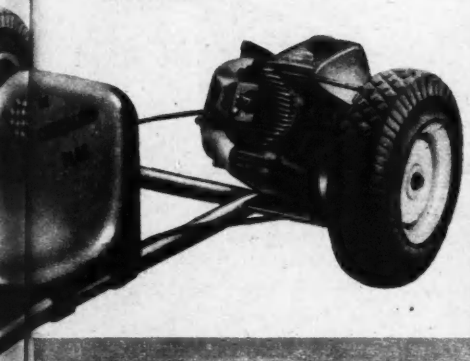


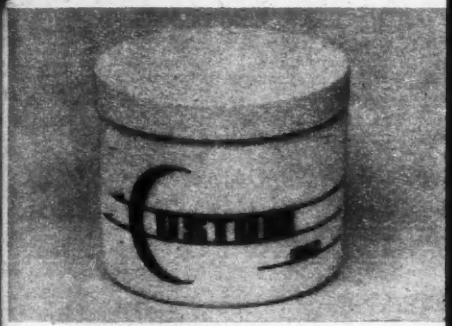
ELECTRIC DRILL
2.7 amp ¼-inch chuck electric drill is called 'Dyna-Mite'. Ball-bearing equipped, drill has side handle. Has 14 special shop attachments. Price: $22.95. Write: Miller's Falls Co., Dept-cc, 5224 E. Washington Blvd., Los Angeles 24, Calif., for catalog.



GAUGE MOUNTING

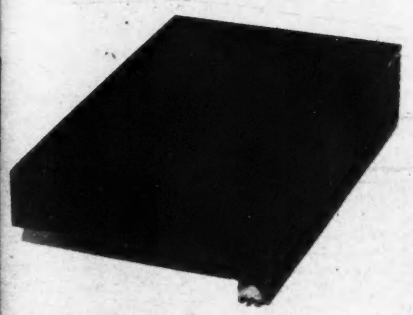
Beautiful ripple-finish chrome plated, this panel mounts beneath dash, holds oil pressure, amp gauges. Complete with instructions—$4.95. Write for catalog, 25¢, to: Bohn's of California, 9058-cc Ler Street, Pacoima, California.





CUSTOM WAX

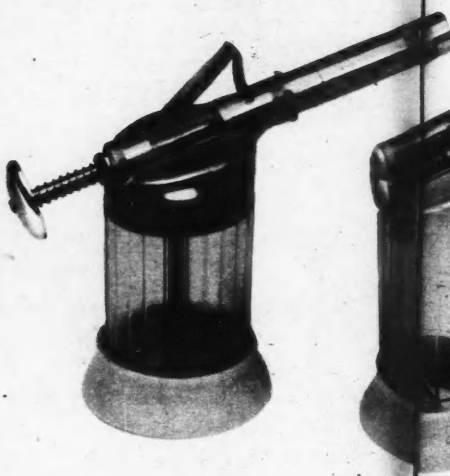
This long-lasting wax containing carnuba and fluorocarbons can be applied in the sun. Gives deep, rich finish to surface. Price: $2.50. Write: Karseal Co., Dept-cc, 11552 Hart St., North Hollywood, California for jar.



MICRONIC AIR BOX

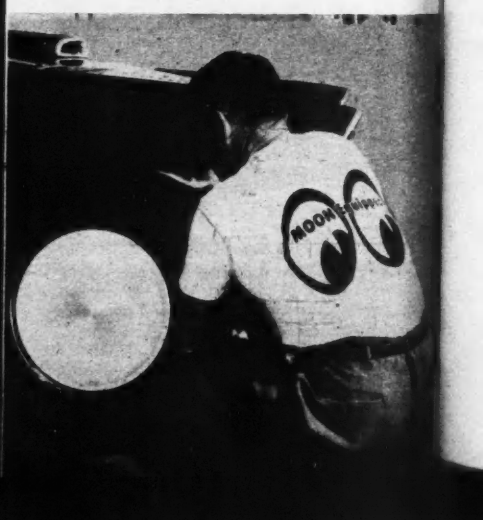
New concept in air filtering; gives 20% less restriction than air filters, 50% less restriction than oil bath filters. Low silhouette, runs quiet. Write: C&T Automotive Inc., Dept-cc, 6926 Lankershim Blvd., North Hollywood, Calif., for information.

CC shops

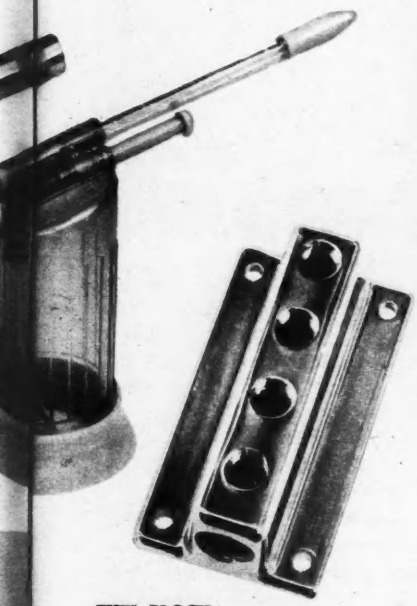


TROPHY CATALOG

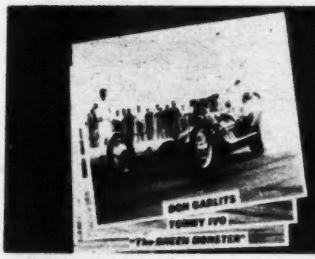
Fully illustrated, this beautiful catalog stocks a complete line of custom trophies and plaques. A must for clubs! Available upon request from: Custom Trophy Company, Inc., Dept-cc, 5017 W. Exposition Blvd., Los Angeles 16, California.



HOME LUBE SET
Ideal for home lube jobs or any matter which requires a little lubrication. Kit contains high-pressure pistol-type oiler, and hand grease gun. Features visual supply. $3.75 per kit. Write: Foreign Car Accessories, Dept-cc, Cold Spring, New York for lube kit.



FUEL BLOCK
Chrome plated for beauty, designed for functional purposes. Die cast, it can be used for either two-three, or four carburetor set-ups. Prices: $4.25, $4.50, $5.00. Segal Automotive Products, Dept-cc, 1521 N. Gardner St., Los Angeles 46, California.



ACTION PHOTOS
Each package contains 12 photos of action which are suitable for framing. Size: 4"x 5". Pak #1: Detroit Nationals, Pak #2: Bonneville, Pak #3: Top Drag Cars in Nation. Each $1.50. Photo Pak, Department-cc, 6836 E. Progresso St., Long Beach 15, California.

MOON T-SHIRTS
Go to the drags in style with your Moon T-Shirt. Five sizes are available with large Moon emblem on back. Price: $1.50 each, ppd. Write: Moon Equipment Company, Dept-cc, 10820 S. Norwalk Blvd., Santa Fe Springs 40, California.

LETTERS

GARLITS' WHEELS

Dear Sir:

I enjoyed your feature story on Don Garlits very much. It was carried out in the true Car Craft fashion. However, I believe there was one error in the technical call-outs on parts. In the copy, it states that Garlits is running Halibrand rear wheels. Yet, if you'll look closely at the photos, I think you'll find that these are American Racing Equipment Company wheels. Am I right?

— Dick Mann
Los Angeles, Calif.

Yes, Dick, you are correct. They are American Racing Co. wheels. Apparently the slip-up occurred during the period the copy was written and when the photos were taken. At the time our reporter, Bob Behme, talked to Garlits, he was using Halibrand Wheels. But, shortly afterwards he changed to American Racing wheels. Then, he came to California and that was when the pictures were snapped. A thousand lashes for letting this slip by and our apologies to those concerned. You have an eagle eye, Mann.

THEY CHANGED THEIR MINDS

Dear Sir:

I have been a regular reader of your mag. I bought a car, once called a piece of junk by my friends, but since I began work on my car they have changed their minds. I would like very much to see my '47 Ford in your magazine. The front has been changed with a DeSoto grille and Buick headlight rims. The chrome

on the side, door handles, trunk, and hood has been filled-in. The rear has Lincoln taillights and has been lowered 6 inches. My mill runs on 3 carbs (two-barrels) and has milled heads with valve pockets dug out for full race cam. The block is bored .060 over size. The flywheel has been changed to truck and lightened, followed by 11 inch clutch and pressure plate. The transmission is '39 Ford with Lincoln 26 tooth gears. The rear end is 4.11. The interior is done in red and black Naugahyde, with a

white Naugahyde top. My dash has been replaced with chrome and painted red. The exterior finish is in 9 coats of lacquer which is light blue in color. I sure would like to see it in your magazine.

— Paul Templet
Algiers, Louisiana

HOLIDAY FOR OLDS

Dear Sir:

Enclosed are a few pictures of my '53 Olds "98" Holiday coupe. Conventional work is naturally a clean hood, deck shaved and spot lights.

The headlights are from a '53 Buick, taillights are '56 Olds "98", rear bumper is '55 Olds and front bumper is from a '57 DeSoto with '58 Ford mesh used in grille opening. I removed and leaded door handles and they are operated electrically now. The chrome is removed from the bottom of rear fenders and skirts. Rocker panel chrome strip is also removed and holes filled. The deck lid is operated by use of a '56 Buick lock located on panel under trunk lid. The color is Jet Black, Duco #44. I painted it in sections and used four or five gallons. I lost accurate count. It took me almost a year in my spare time to complete the work. Lead is the only material I used on the car.

The interior is black and white Naugahyde. A Stewart-Warner vac-

uum gauge is installed where the clock used to be located. Dash is mildly striped.

I would appreciate seeing my car in a future issue of your mag.

— Ron Petrucci
Lyon, Ill.

We think your nice front end treatment is particularly ingenious. Very sharp.— Ed.

STARTING ALL OVER

Dear Sir:

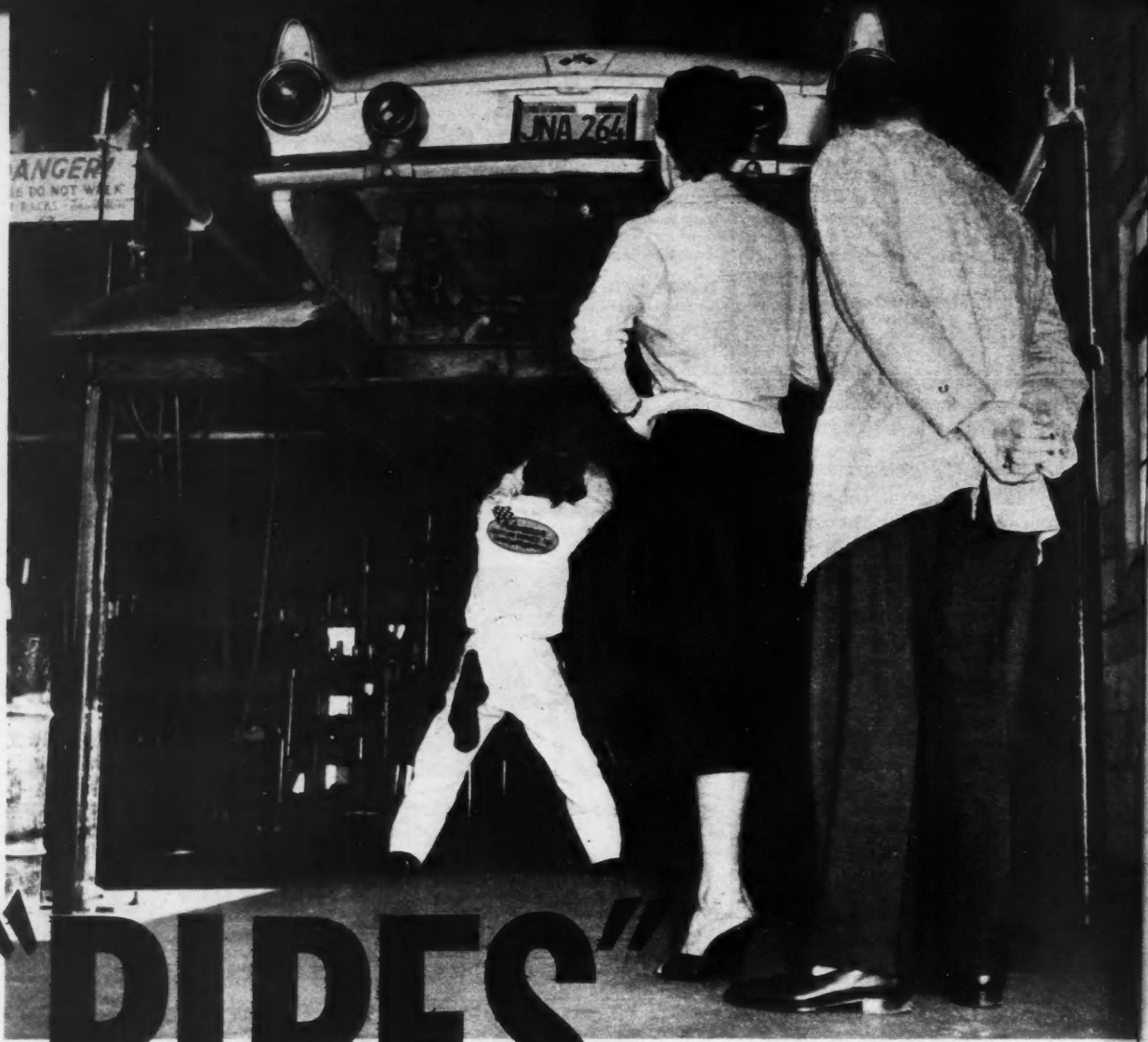
I have been a faithful reader of your magazine since I was fourteen and after reading your latest copy decided it was time I sent you a picture of my car. I have been working on it for over a year now.

My rod or maybe considered a custom too, is a 1939 Mercury convertible. It has been lowered about 5½" in the front and 6½" in the rear. The 7.00 x 16 against the 6.40 x 15 in the front are responsible for the slight "dago". Besides the regular dechroming, it features a louvered hood, gas filler pipe in the trunk, rolled rear pan, '48 Pontiac blinkers, '37 DeSoto bumpers, and molded fenders which are also rolled under the body leaving the car just about seamless. The interior is finished in white rolled Naugahyde. Under the hood is a mildly souped '53 Olds engine hooked to a stock trans with 25-tooth Zephyrs and a Columbia two-speed rear end.

Recently we moved from Pittsburgh, Pa. to just outside Atlanta. The Merc made the trip without the slightest trouble and averaged 17 miles per gallon. Unfortunately after arriving the Merc met with a slight disaster. Now I am starting all over again. Maybe in a few years you might be interested.

I want to compliment you for not only having an interesting magazine but also a very useful one. Your step-by-step how-to-do-it-yourself articles have been very helpful to me. It would be a pleasure to see my car in your magazine.

— Corky Hizer
Chamblee, Ga.



"PIPES"

LEGAL OR ILLEGAL?

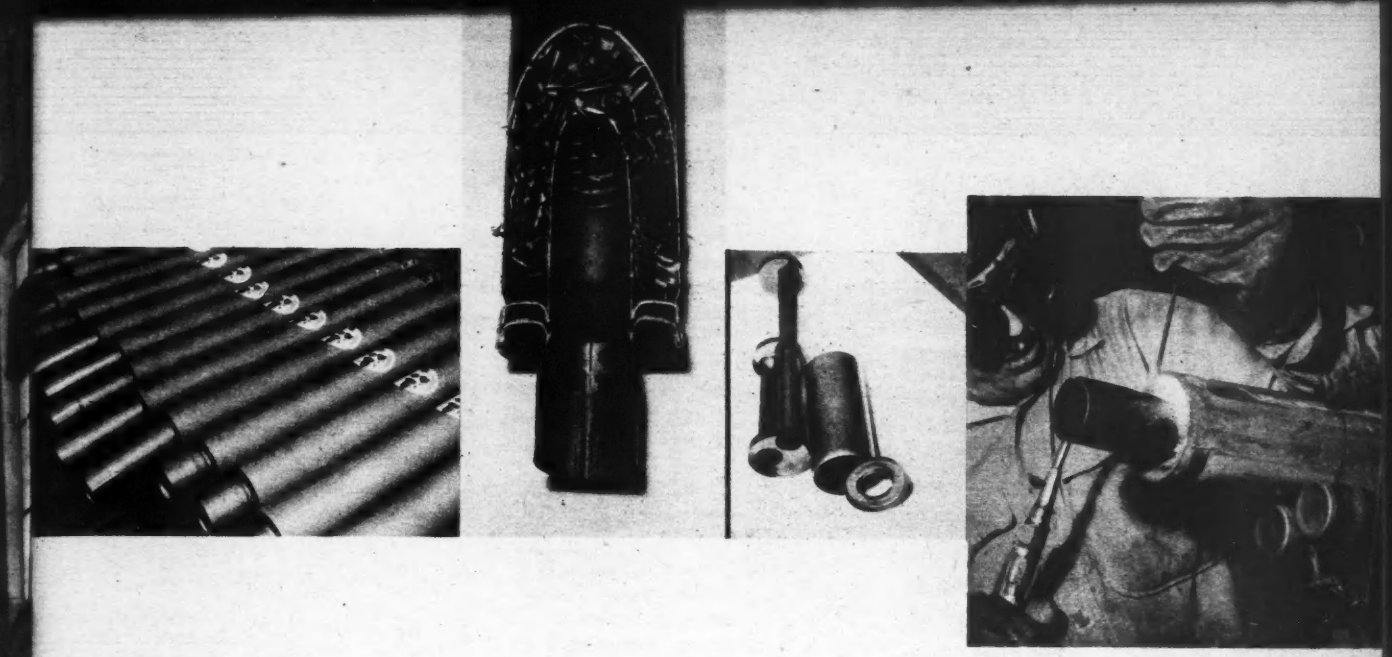
By Bob Behme

It isn't the level of sound that's really important it's the tone; a tone that's exciting yet low enough to be within the law

I'VE JUST COMPLETED a two-month cross country survey to find out the facts about mufflers. When you buy your next muffler you'll find, as I did, that muffler shops are selling a new tone and are giving away a new kind of thinking.

The new approach came when manufacturers and shops from Bar Harbor, Maine, to San Diego, California, began to police their ranks, setting up the nation's first unified answer to the question "How loud is legal."

"The police couldn't answer the question," one



Photos by Lang, Brollier

manufacturer told me, "and an answer was needed, so we set up our own answer and you're hearing the results all around you."

In Los Angeles, recently, a young man drove to a local muffler shop to order a set of 22 inch mufflers for his '58 Chevrolet.

"I won't sell 'em to you," the mechanic said, "they'd be too loud."

In New York, a customer with a '59 Ford told the mechanic, "I want a set of 24 inchers. If you can't put them on, I'll do it myself." "Do it yourself," the shop foreman snorted, "I won't even sell 'em to you. You don't want 24 inchers — you only think you do."

Both stories have happy endings. Neither customer really wanted the muffler he ordered: he wanted tone —a tone he could only hear in his mind. The mechanics gave both the tone they wanted with mufflers both legal and safe: a tone loud enough to be exciting, yet low enough to be legal.

Such tailor-made action began when muffler industry leaders awoke to the fact that police, traffic agencies and automotive engineers failed to agree on an answer to the question "How loud is loud?"

An answer had been long needed, especially in states such as California where an old law makes it illegal for any car to sport a muffler or exhaust system not factory installed: sound has nothing to do with legality here. Such antiquated laws are on the books in many states. Where they exist muffler industry leaders are stepping into the picture to prove there is nothing wrong with a custom muffler system.

Recently, I queried a police officer in Oregon. He told me, "I rarely stop a car because it's noisy. If I stop a car for some other traffic violation and the exhaust sounds loud, I throw it in, but it is never the primary reason for a citation."

In Los Angeles, another officer told me, "I give a lot of citations for noise. I have no standards except my own ear. Noise bothers me more on some days than on others."

So it went across the country: until muffler manufacturers stepped in there was no standard for sound. Even today, police are baffled by the interpretation of what a legal exhaust sound really is.

This is why muffler manufacturers have begun to police their own products. A muffler that is pleasing and legal gives new confidence to both customer and police. In this, the industry has been successful.

A muffler shop owner told me, "Two years ago the police waited outside my shop to nab customers as they drove out the front door. Today, the only time I see the police is when they stop in for coffee. They know that when a customer leaves my shop I've given the customer as much tone level as I can, yet kept the exhaust system legal."

This is a change in attitude. It has been a gradual transition. The big switch has come in theory. Today muffler engineers agree "use the longest muffler you can."

"We no longer install just any muffler on a car," a San Francisco shop owner told me, "We know through experience which lengths, pack and design give the best tone for U.S. cars. We no longer query our customers as to what muffler they want—most of them don't really know. We query them about the tone wanted and build up a legal system that gives them that tone."

It is still possible to create illegal muffler systems. Anyone can waltz into an auto supply store and buy "shorty" mufflers, but generally, these will give neither the sound level nor the tone that is pleasing. While all mufflers function on the same principle of sound wave leveling, the length and quality are of prime importance. The more costly mufflers more than repay the cost in increased life and pleasing tones.

CONTINUED

"PIPES"

HOW MUFFLERS WORK –

To understand how a muffler works, imagine noise as ocean waves. You don't see them: you hear them. The waves begin in the combustion chamber of the engine, well up with high crests and low valleys, and undulate through the pipes to the muffler. It is the muffler's job to unite the individual high and low crests, flatten some of the extremes in high and lows, and allow a continuous, pleasant sounding flow of waves out the tail pipe.

There are two basic types of mufflers in use today: oval or round, 3-pass mufflers and straight through designs. The 3-pass, oval or round shaped type, forces the exhaust waves in, around and through three passages inside the muffler. This is the most common type, used on most Detroit cars as stock equipment. The straight through, an open passage with packing around a louvered core to deaden pre-determined amounts of sound, was once strictly a hot rod replacement item. Today, it is sometimes factory installed, especially on many foreign imports. It delivers the best tone and provides the best performance.

THREE PASS MUFFLERS –

These have been factory-installed on everything from station wagons to Thunderbirds. The exhaust gases and pressure waves are forced, in an irregular course, through hollow tubes and small chambers which baffle and muffle the sound. The manner in which the pressure waves are forced around the tubes, flattens the waves, unite the individual bursts of sound, and creates the restrictive, but "quiet" sound.

STRAIGHT THROUGH MUFFLERS –

The straight through muffler is today's most popular type with performance minded car owners. In addition to relieving detrimental exhaust back pressure, straight through muffler systems claim additional gas mileage and horsepower. All the straight through mufflers utilize a straight tube core in the center. The area between the core and the shell is packed with either fiberglass or steel shavings. A portion of the sound waves pass through the core: another portion is forced through the packing. These paths help produce the unique tone.

PRO AND CON PACKING –

If there is any real argument over mufflers, the argument centers around the best packing material for the straight through design. Steel pack and fiberglass pack both have staunch supporters. Perhaps no one can solve the problem, perhaps no one claims true superiority for either type, perhaps both have a place in exhaust tuning. One thing is certain: the sound and tone from either pack is more pleasing than the sound and fury of the arguments over the materials.

The steel pack is the oldest of the two packing materials. Supporters of steel pack claim it was first (true) and has a longer life. Supporters of glass pack claim it will not rust (true) and has a longer life.

To evaluate the claims, it is necessary to see why mufflers wear out. Rust and corrosion are the two muffler killers. On the inside, acids from the engine filter back to the muffler where they condense on the muffler's inner walls. On the outside, moisture from the engine and the highway cling to the shell. Corrosion on the inside and rust on the outside attack the metal shell.

The primary claim for steel pack is that it heats faster. The heat from the exhaust gases, steel pack adherents claim, works quickly through the pack to the muffler shell where the increased heat dissipates the corrosive acids and highway moisture to prolong the muffler shell life.

Fiberglass adherents claim several advantages: fiberglass, they say, weighs less than steel, will not burn, carbon, rot or corrode as steel will.

Quality mufflers use a seamless tubing for outer shell. Inexpensive mufflers are seamed and deteriorate as shown.

This, claim steel pack partisans, is the big disadvantage: fiberglass will block heat, like refrigerator insulation. Thus normal condensations do not evaporate quickly and consequently attack the outer shell faster.

On cheaper glass pack mufflers, this is probably true, but the heavy duty, quality mufflers are designed to carry exhaust heat to the mufflers shell quickly. Independent surveys seem to indicate that quality fiberglass mufflers, using either packed, rolled fiberglass or spun fiberglass threads that do not burn, pack or blow out through the slotted core, are constructed in ways which eliminate earlier problems. Today, it seems as if there is little difference between steel pack and glass pack, if

Undercarriage of '55 'Bird is good example of limited room due to frame members; 24-inch mufflers would be too noisy, consequently illegal. Solution lies in small resonator cans fixed at rear of muffler. Tone remains good, within the law.

Dissection of inexpensive glass packed muffler illustrates deteriorating action. Cheap, fiberglass fibers were used which shifted & packed up. Much packing has been blown out thru louvered core; giving a flat, dead sound exhaust.

the muffler is quality. If there is any, it is in tone and up to the car owner's personal preference.

WHICH REPLACEMENT?

If you're convinced that straight through mufflers are best, and if you want tone, the problem is what kind of muffler. One thing is certain: you don't want the oval three-pass type the factory may have supplied. You want a straight through. Whatever kind you buy, glass pack or steel pack, buy a quality muffler. There are several reasons.

For example, the muffler supplied by the factory is often constructed of light-gauge steel. A replacement muffler, from a quality manufacturer, will be made from considerably heavier steel. If for no other reason, the custom-built heavy-duty shell will outlast the factory muffler.

Specialty muffler shops, catering to custom trade, go by this rule: use the longest muffler possible, to make certain the sound level is legal, then pick the core design, the packing and the placement to produce the tone.

Today, due to cramped quarters concerning frame members and undercarriage engineering on late models, four mufflers (two to a side) are used with most stock exhaust systems. Reason for this in most cases is that only short, medium sized mufflers can be fitted between the

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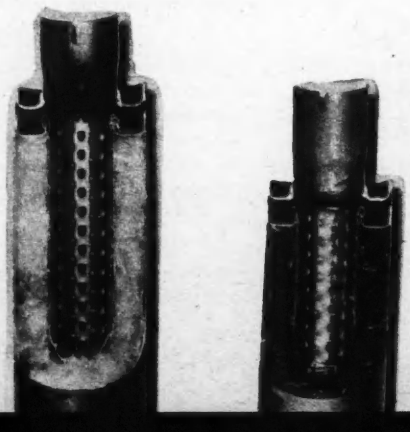
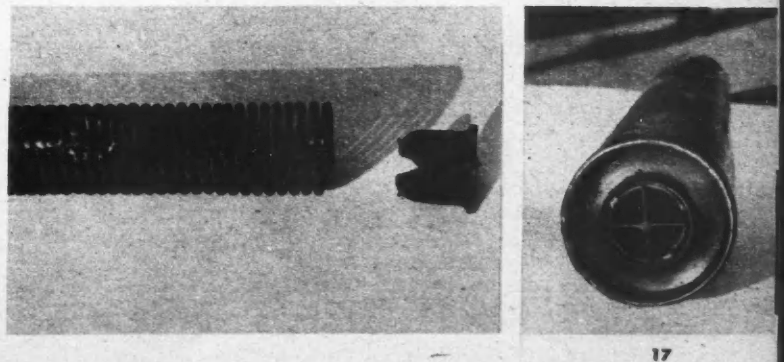
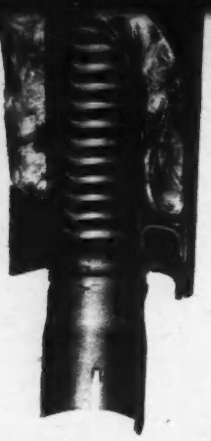
Douglas Mufflers, steel and fiberglass pack feature 18 ga. seamless tubing outer shell, end cap 14 ga., inner end cap 18 ga., welded construction. Glass packed muffler uses long strand fiberglass threads for blow out proof.



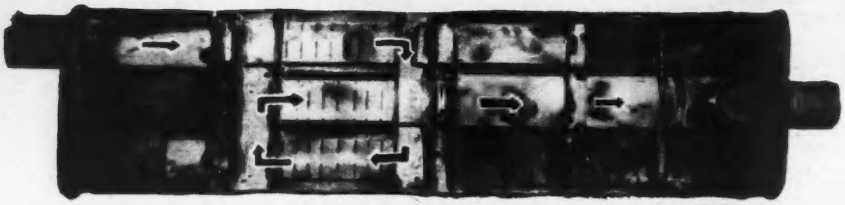
Porter Mufflers; Steel pack turbo-pack only. Features coil core, 18 ga. seamless steel tube outer shell, 16-18 ga. end caps. Turbo-pack features core deflector which creates a turbulence with exhaust gases assisting in sound leveling.





Sonny Mufflers; fiberglass pack only. Features detailed louvered center core, 18 ga. seamless steel tube outer shell, double 14 gauge end caps, long strand fiberglass thread packing assures non-blow out deteriorating action.

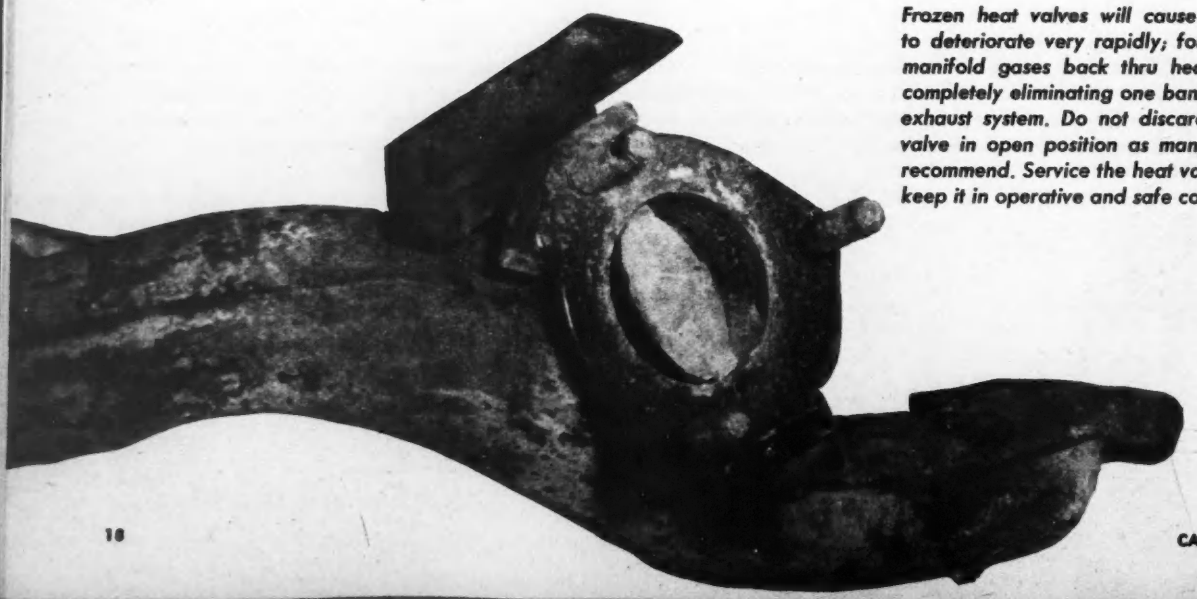
Typical 3-pass stock muffler is shown below. Note restrictive passages of gases and dead-end chambers. Stock mufflers as this usually rust in short time due to thin gauge shell. A replacement muffler of this type is slightly heavier in construction, but will not last as long as quality glass or steel pack muffler.



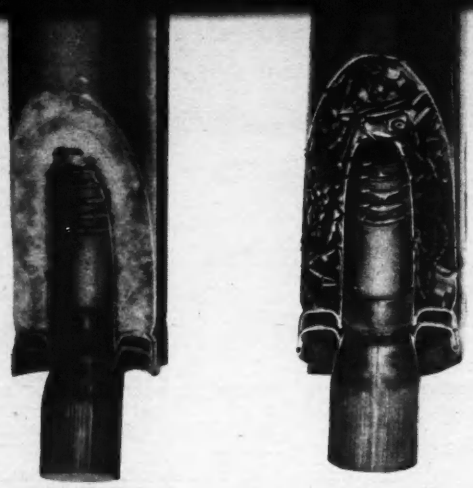
frame members and undercarriage structure and a need for additional muffling is required. This additional muffling in most instances is fulfilled by adapting small "resonators" to the rear of each muffler. These resonators, actually diffusion chambers, which appear to be nothing more than short muffler cans, are designed with a straight through core. The chambers are generally hollow, but with some custom exhaust installations, the shop prefers a light packing to help tune tone level. The resonator is only used when a custom installation restricts the use of long, adequate mufflers.

MUFFLER PLACEMENT

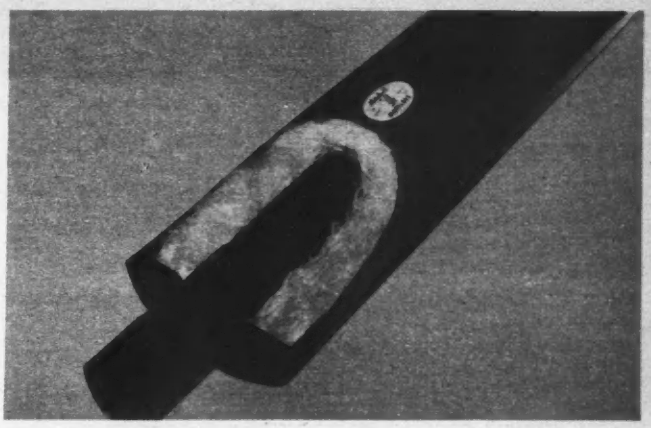
There are only a few important facts to remember when concerned with muffler placement. The farther the muffler is moved to the rear the less tone it will yield. Mufflers that are placed at the rear of a car are also subjected to extreme corrosion and rust conditions. Heat dissipation is found to be very poor that far removed from the engine and consequently does not "dry out" the muffler. With systems that require rear resonator cans to assist in tone level, they are usually the first to fall prey



Frozen heat valves will cause muffler to deteriorate very rapidly; forces the manifold gases back thru heat risers completely eliminating one bank of the exhaust system. Do not discard or fix valve in open position as many shops recommend. Service the heat valve and keep it in operative and safe condition.



Advance Mufflers; steel and fiberglass pack featuring 18 gauge seamless steel tube shell, double 14 gauge double end caps, louvered core. Glass packs feature a combination of both fine mesh fiberglass and interwoven mat cloth.

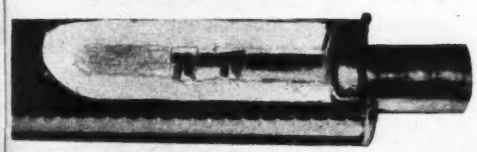


Mitchell Mufflers; fiberglass pack only featuring both oval and round designs, 18 gauge seamless steel tubing outer shell, single 16 gauge end caps. A louvered center core. Long strand fiberglass threads used for continuous packing.

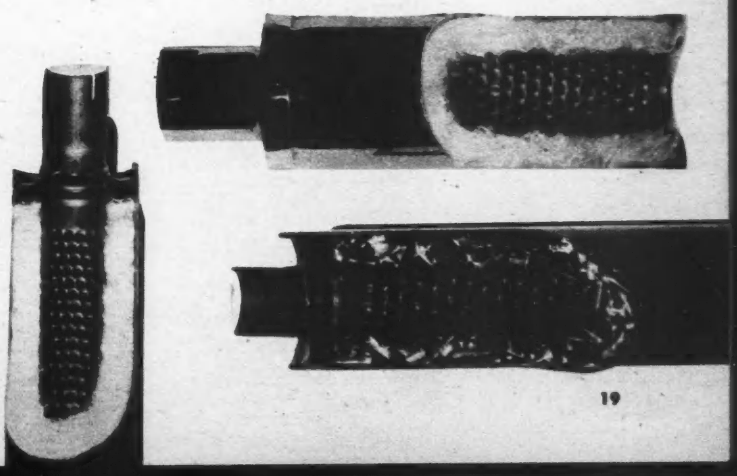
to corrosion and rust due to the fact that they are removed from vital engine heat needed to dissipate condensation. As discussed earlier, some of the recent models create some problem in muffler placement. But the general rule can just about apply to all cars: when possible install the muffler as close to the head pipe. Heat, prolonging muffler life will be good and the position makes for the best in tone quality.

The problem of how loud is loud continues in most states. Only research in universities and on the part of muffler manufacturers will help diminish the unnecessary and sometimes border-line arrests. Since there is no formal manner in which traffic officers can determine legal sound levels, the decision rests upon the officer's personal interpretation. This allows for debatable human error. In most cases such error is not intentional: but when it occurs it is regretable.

The only way you can reduce the chance of such error is to follow the advice of custom muffler shops: use the longest possible muffler on your car, remember, it isn't the level of the sound that's really important — it is the tone.



Fenton Mufflers; fiberglass pack featuring 19 gauge outer shell, 16 gauge caps. Glass packing is combo of chopped fibers & glass mat.

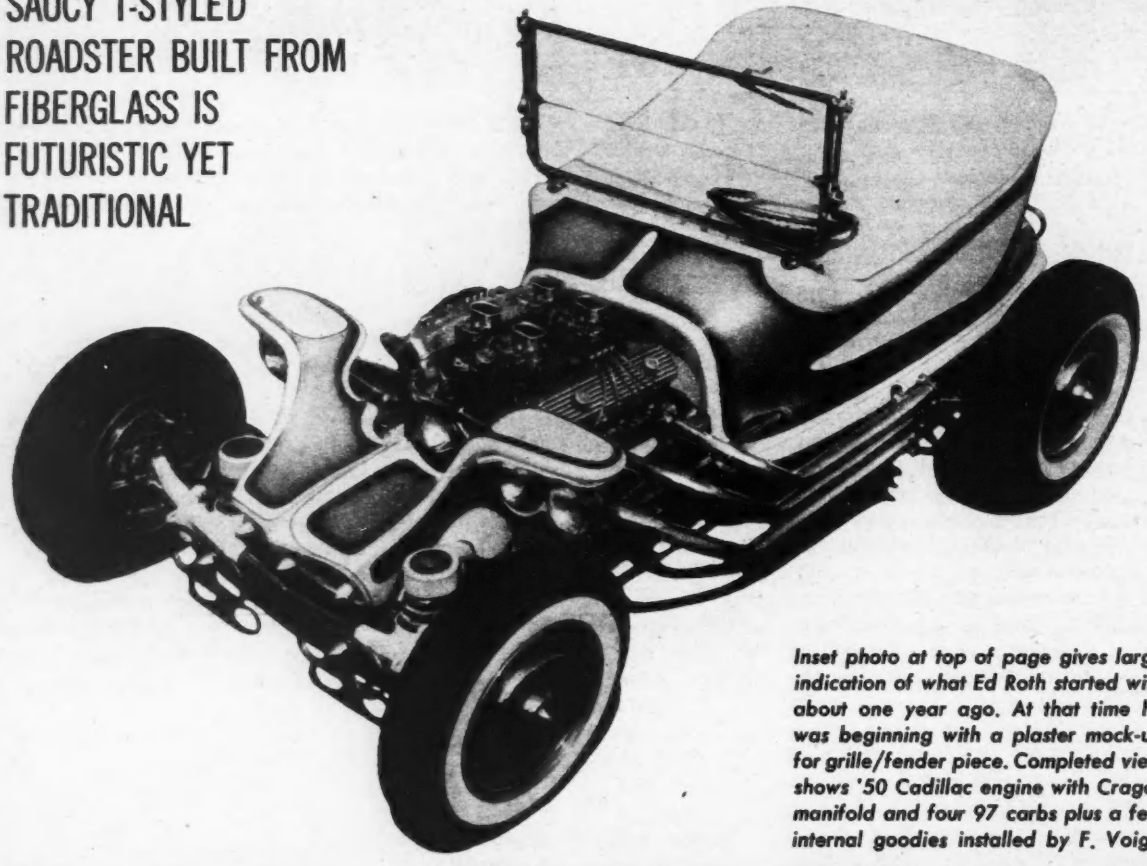


Hollywood Deep-Tone Mufflers; steel and glass pack featuring 16 gauge seamless outer shell, 14 gauge dual end caps, perforated core. Chopped fiberglass strands are used for packing. Small exhaust tip at right is actually special-built resonator. Note core and light amount of fiberglass packing tuning sound.

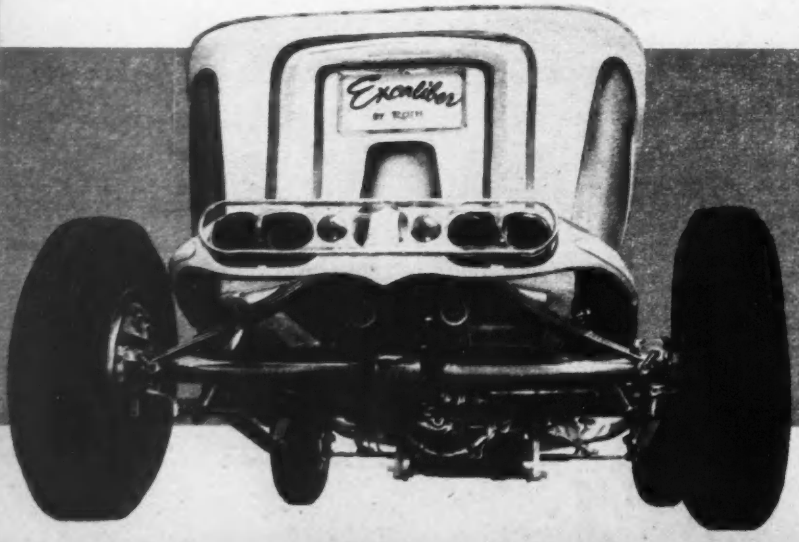
Excaliber

SAUCY T-STYLED ROADSTER BUILT FROM FIBERGLASS IS FUTURISTIC YET TRADITIONAL

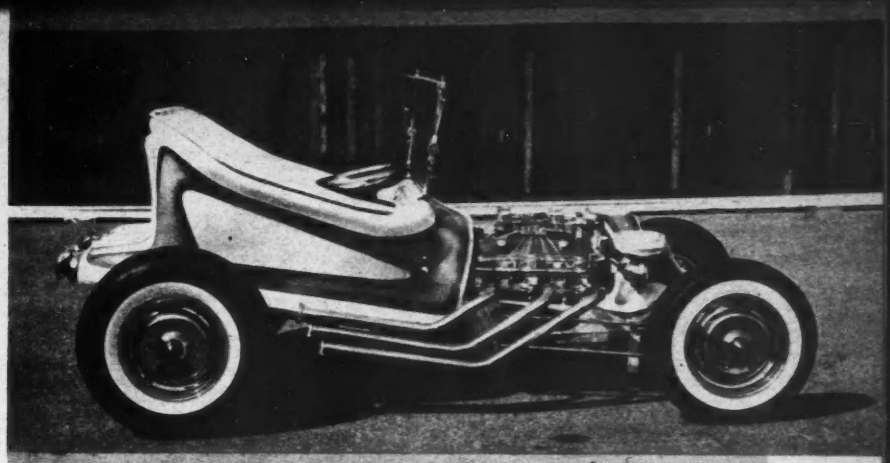
Photos by Colin Creitz



Inset photo at top of page gives large indication of what Ed Roth started with about one year ago. At that time he was beginning with a plaster mock-up for grille/fender piece. Completed view shows '50 Cadillac engine with Cragar manifold and four 97 carbs plus a few internal goodies installed by F. Voigt.

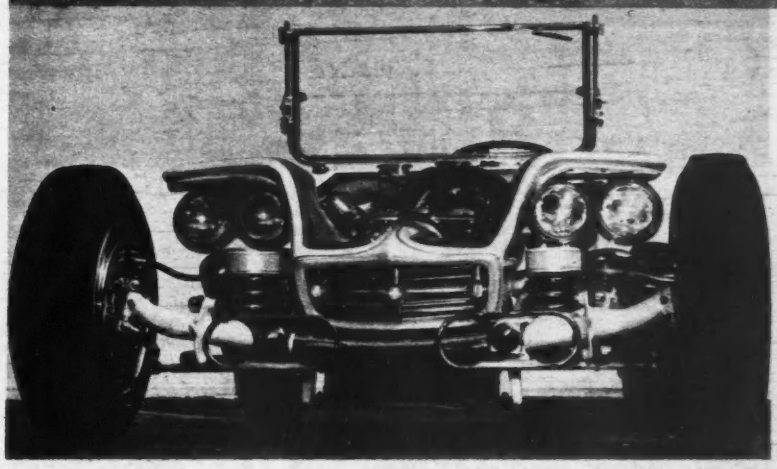


Car is raised in rear due to installation of Model A rear spring on '48 Ford rear end. Front is stock height. Note extensive chrome plating done by Chrome Nickel Plating in South Gate, Calif. Nerf iron protects '58 Chevy taillight housing with '56 Chev lenses installed.



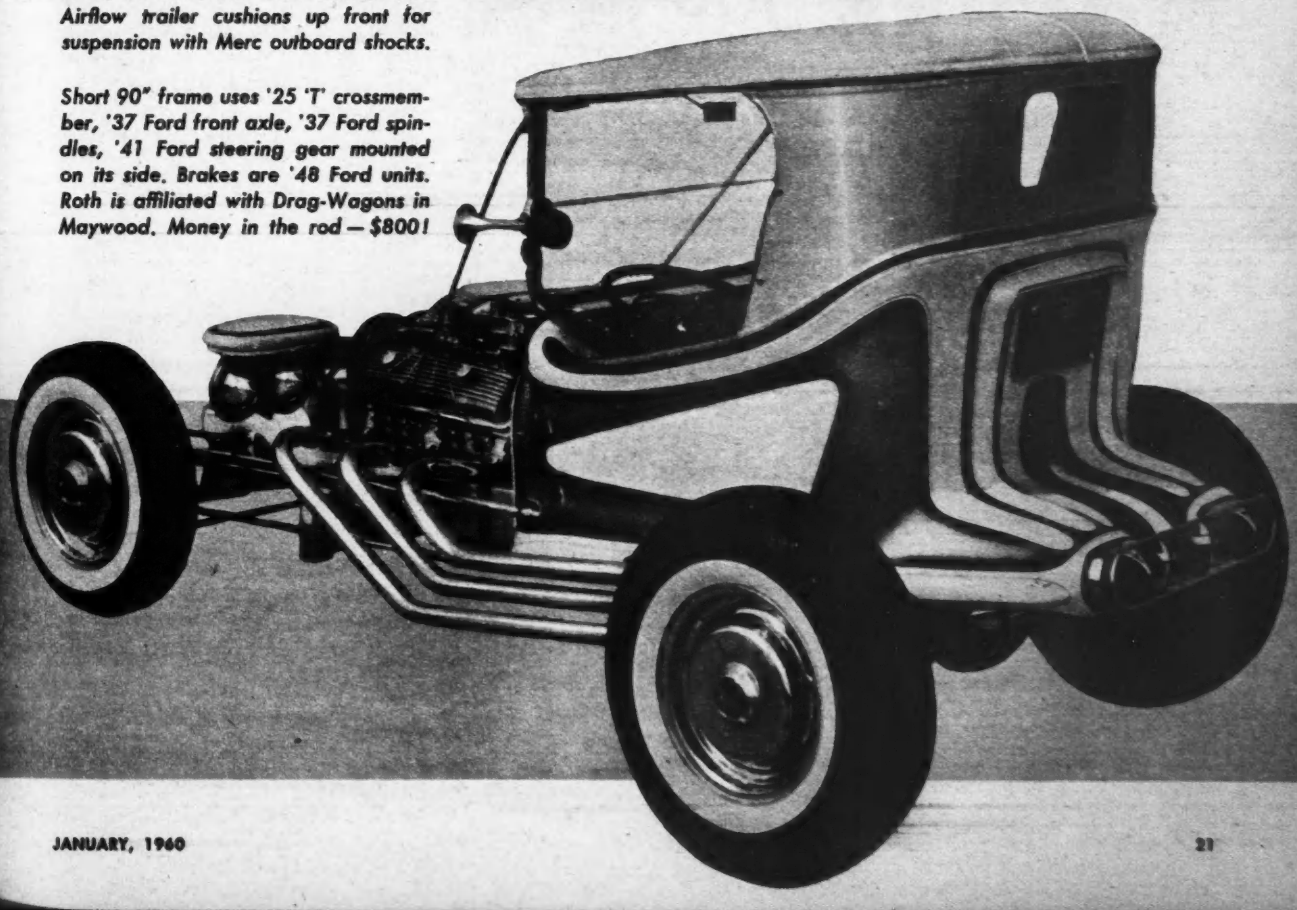
Novel top built by Roth is of aluminum and Naugahyde over a wood frame. Sides raise for entry into black and white upholstered cockpit. S-W gauges and '58 Impala steering wheel used.

Side view illustrates futuristic design of Roth's roadster shell. Built to sell, the shell's price is $230. Windshield is pirated from a '22 Dodge, blue-tinted safety glass is added. Colors are Pearlescence with turquoise, silver scallops.



'59 Rambler quad headlights mounted under fenders in special ring; grille is piece of '59 Chev. DKW radiator is used. '58 Chev coils are combined with Airflow trailer cushions up front for suspension with Merc outboard shocks.

Short 90" frame uses '25 'T' crossmember, '37 Ford front axle, '37 Ford spindles, '41 Ford steering gear mounted on its side. Brakes are '48 Ford units. Roth is affiliated with Drag-Wagons in Maywood. Money in the rod — $800!

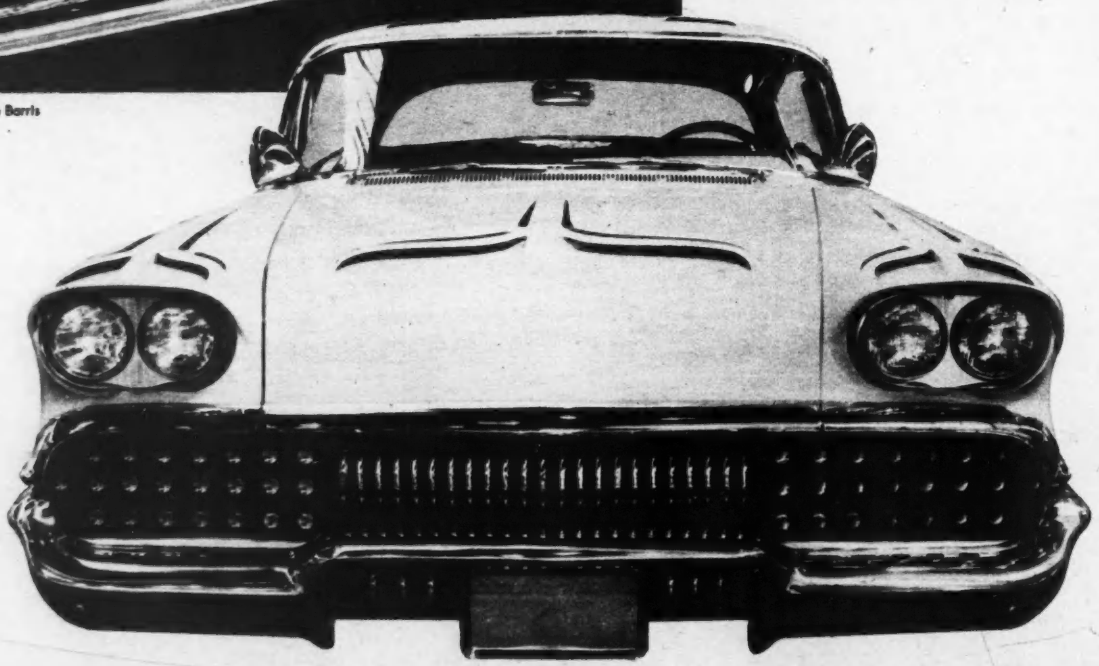


here's how:

HOUSEHOLD DRAWER KNOBS INTRODUCE A NEW VARIETY OF GRILLE TRIM FOR EASY CUSTOMIZING

DID YOU EVER think you would be customizing your car with supplies from a hardware store? Many alert customizers today are doing just that. The reason is the increasing popularity of cabinet drawer knobs for restyling. Custom enthusiasts have found that there are literally hundreds of ways the knobs may be used on their cars. One of the most common uses so far is on custom grilles. Due to the many different knob sizes and shapes, unlimited patterns and placements are possible. In almost all cases, the knobs are used in conjunction with a perforated or expanded metal backing because of the ease of installation. These pages will give you a few ideas of what can be done. We'll let you take it from there.

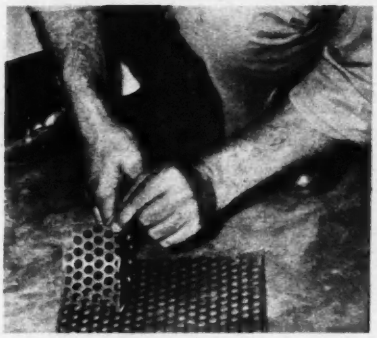
Photos by George Barris



1. Measure the height and width of the grille frame that is to be filled.

2. Transfer the measurements to perforated metal and mark for cutting lines.

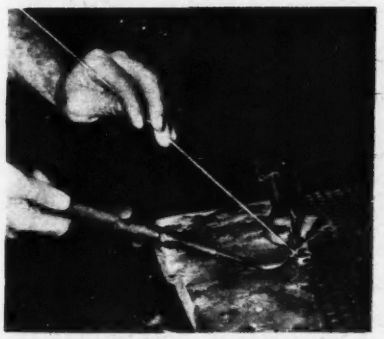
3. If grille frame has curved corners, hold in place and mark area to trim.



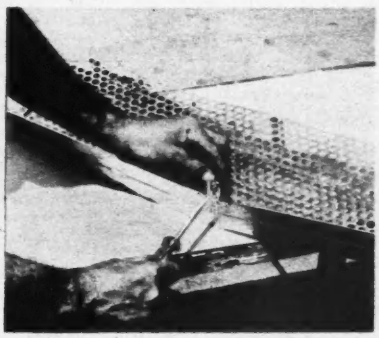
4. Use metal shears to cut perforated metal. This will be used for backing.

5. Cut 1" by 2" straps from sheet metal to be used for attaching mesh to frame.

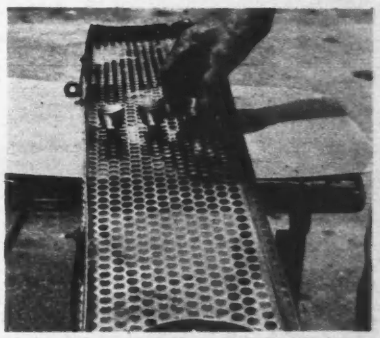
6. In one end of each of the attachment tabs drill ¼" hole for mounting.



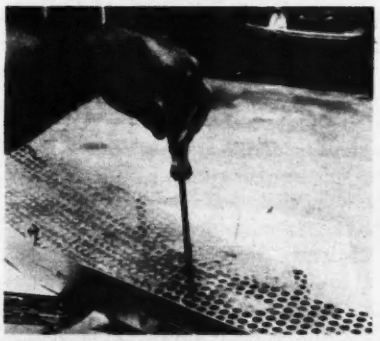
7. Braze the opposite side from the hole to the screen at top and bottom.



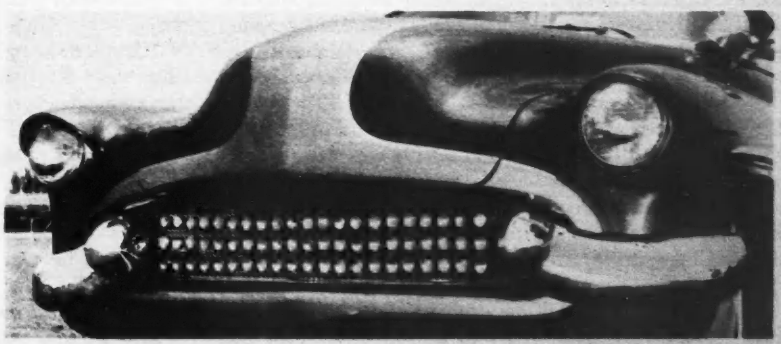
8. Place the mesh grille inside grille frame and secure together with bolts.



9. Decide on pattern for knobs, then place on grille to note amount needed.



10. Use washers slightly larger than holes, secure knobs with metal screws.



11. Install complete grille frame in cavity. Pattern of knobs is easily changed.

MICKEY THOMPSON FAILED to break the absolute record for speed on land. But he did decisively shatter the World's Records for five kilometers, five miles, ten kilometers and ten miles. These had been set by Britain's John Cobb in 1939; when he set the 394.2 mph absolute speed record in 1947 his gearing put the longer-distance records out of reach. If the weather had given him sufficient time, Cobb might have jacked his ratios around and re-written the entire list. The same can be said for Mickey, who fought weather and time all the way.

Mick's conquest by a very fat margin of every flying-start straight-away record with the exception of a single kilo and mile was a fabulous achievement in which we all can take pride. It makes Mick the second-fastest handler in history and the fastest one alive.

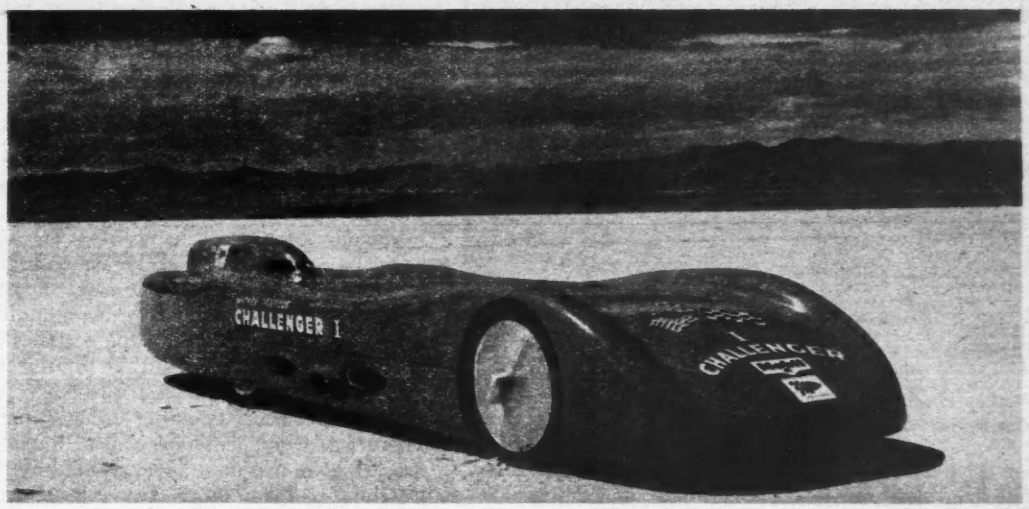
The speed with which he attained his status was fantastic. Cobb's car took years to build; Mick's took ten months. Cobb, inching up his speed, took two months to break 300 mph; Mick did it in two days. In spite of his car's fantastic mass of moving parts, they all worked together with amazing smoothness and, during the Bonneville Nationals in late August, he seemingly without effort turned a two-way average of 330.51 mph and cut a one-way of 362.31 – on half-throttle, he said, and with just ten per cent nitro.

For records to count in the international Big Time they must be supervised and timed by an agency recognized by the International Automobile Federation, the FIA of France. The Nationals had applied for this recognition but it was slow in coming. USAC had it but would not be on the Salt until mid-September. Therefore, ready though he was, Mick could only sit and wait.

He put the time to use. In spite of his "half-throttle" statement he was sufficiently dissatisfied with his car's combination that he reworked the 32-cylinder power package. In the Nationals he had run two Pontiacs with ¼-inch stroked cranks and two with ½-inch strokers. He evidently sensed enough need for more inches to go to the big strokers all around, although this merely raised

ALL BUT THE BIG ONE

Mickey Thompson missed the one he wanted the most— but shattered four World Speed Records fighting time and weather all the way



Record holder looks fast just standing still. Aluminum shell, by Don Borth, measures 19 ft. 7 ins. tip to tip. Tuned exhaust header can be seen flush with lower panel. Small space for vision is evident on canopy.

By Griff Borgeson

Challenger I's displacement from 1708 to 1760 cubes. Then he sat and waited for his date with USAC on the Salt on Sept. 21.

The supply truck was loaded and the streamliner on its trailer on the 19th when Mobil's racing expert, Bill Taylor, phoned Mickey from Utah. "It's storming and the Salt is under water," he said. "It may dry out before the big winter storms come and it may not. I'll stay here as long as there's hope and I'll keep you informed."

On the 31st Taylor called again. "Better get up here fast," he told Mick. "Strong winds have been blowing and the Salt is almost dry enough to run on, should be good in a few days. But rain is forecast for the sixth and after that we will have had it. It's going to be a close one."

Mick and his crew—and USAC—were in Wendover, on the edge of the Salt, the next day. Mick's first act, of course, was to drive over the course and check its condition. Where the Salt is thick it still was greasy. At the extremes of the straightaway, where the Salt is just a thin film over mud, the surface was pure slush. The southernmost mile of the course appeared to have been ruined by the recent rains; instead of the normally-smooth surface it was a vast expanse of up-tilted slabs of dried mud that could not possibly be run on even at 100 mph. Mick swung into action, contacted the Utah State Highway Dept., pleaded for a grader that could at least attempt to blade him a broad, smooth swathe through this caked rubble. The grader came, tried . . . and it worked.

By this means Mick added a mile to the useable straightaway and to make the very most of this he had the grader clear him a half-mile long starting area parallel to the highway. Thus he could have his engines running and his starting speed up before he even got on the actual straight. He would start, heading east, alongside the highway and then, under neutral acceleration, take the sweeping curve that would put him on the northbound course. Coming out of this curve at about 80 mph he could get on the throttle a good half-mile

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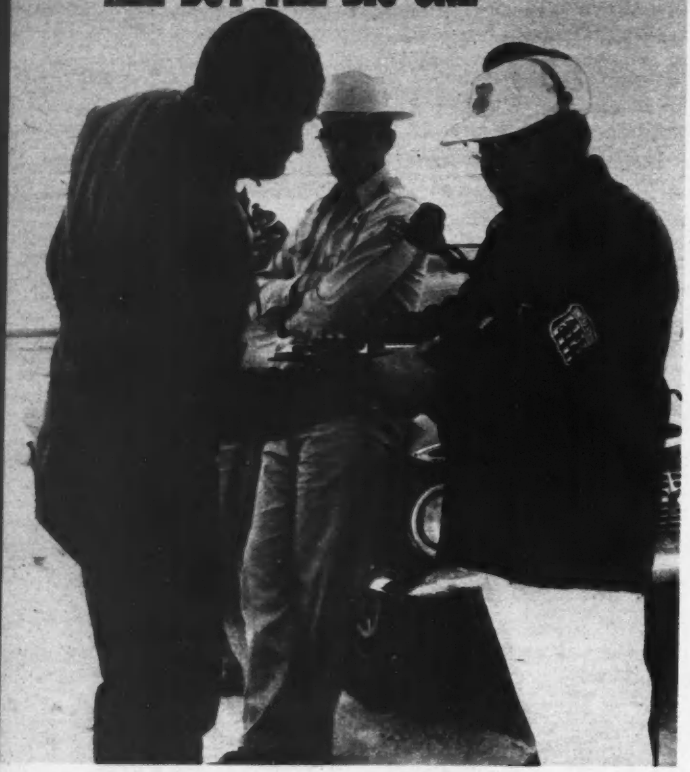
ALL BUT THE BIG ONE



Mickey checks out time and speeds with a USAC official. Conditions were less than ideal throughout the running.

earlier than if he had taken his push-start straight down the long black line.

Mick needed all the room he could get because he had learned the first time he drove Challenger I that you don't just mash its throttle. That was on August 9, on a dry lakebed in the Mojave Desert, when he hit a three-inch bump at about 175 mph while accelerating hard. A half-axle snapped, he became airborne and, when he landed with one front wheel driving and the other dead, he was yanked into a nearly-lethal spin. Since then, one of Mick's most haunting fears was the possibility of getting on the throttle too hard, snapping an axle shaft again and being yanked into a spin, perhaps at very high speed. Then the car, broadside to the wind, would be almost certain to trip over its own pressure. When it would stop rolling there wouldn't be much left.

Late in the evening of Saturday, Oct. 3, Mick and USAC agreed that conditions had improved to the point where it was safe to make a conservative trial run. Just at dusk he accelerated north, fishtailing sickeningly for the first slippery two miles. He howled through the traps at 337 mph, popped his parachute brake early, climbed out tiredly and said, "The surface is impossible. We can't hope to let it out before Monday."

Wondering about the car's solid suspension, a reporter asked if the car vibrated badly. Said Mick, "The car doesn't vibrate; Thompson does! Actually, I can't tell you. I have so much to think about and do in that thing that I've never noticed whether the ride is smooth or rough."

Back at Wendover the car was worked on that night and all the next day. Gear ratios and the overall combination were changed again and the weather held warm and clear.

Monday morning all hands were on the Salt by 5:30 a.m. The Salt is driest and the air most still at the hour of dawn and Mick planned to make his northbound try on the big record just before the blinding sun would rise above the mountains to the northeast.

The sky was dimly lit and the sun not yet risen when his wife, Judy, pushed Mick off at 6:31 a.m. He came furiously this time, sounding stronger than ever before. There was a momentary let-up in the roaring exhaust note, then he was on it again all the way. We who were watching mid-way on the course watched the blue dot swell in size as it rushed at us with fantastic velocity. Then he was off the loud pedal and the car flashed by, emitting a low, whistling roar as it slipped through the wind, coasting.

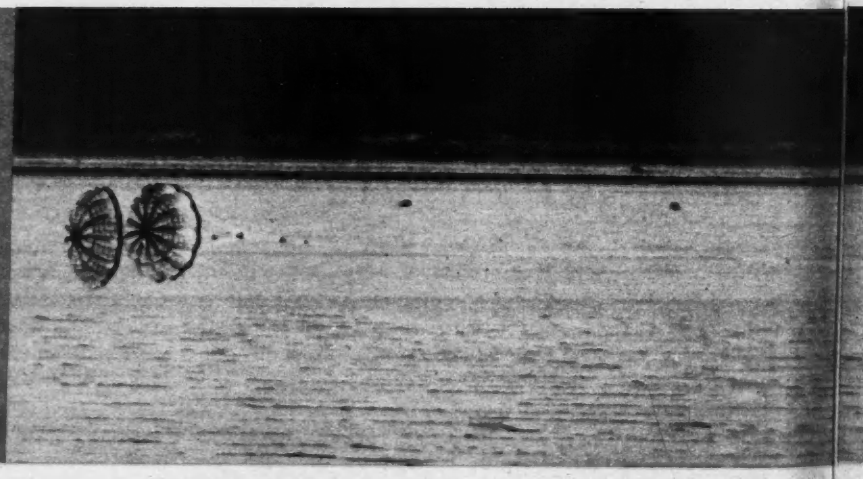
Mick is one of the most doggedly determined men in the world but he dragged himself from the cockpit after that run ready to quit. Driving a 4500-lb. vehicle that has one horsepower for every two lbs. of its weight

Below are the fantastic times turned in record runs. Four are World Records.

Distance	Previous Record	South Run	North Run	Two-Way Average	MPH Increase
1 km	393.8	366.41	361.26	363.82	——
1 mi	393.2	367.83	359.60	363.67	——
5 km	326.7	351.95	338.95	345.33*	18.63
5 mi	303.2	342.54	338.89	340.70*	37.50
10 km	283.0	325.65	329.56	327.59*	44.59
10 mi	270.4	282.72	289.68	286.16*	15.76

*New Absolute World Record also new American National Record

After experiencing some difficulties with the original chute, a dual chute with a longer cord was installed. It worked to perfection, making the records possible.



over a slippery, not overly-smooth surface is harrowing enough at best. But on this run Mick had slid off-course at about 200 mph and clobbered a wooden stake with the streamliner's nose. He kept going until he hit a rough area half-way down the chute. It jolted the car's belly pan loose at the rear. When the pan began clattering and banging on the Salt Mick shut off. That was it for Monday; back to Wendover to repair the damage.

But Mick had seen to it that this run was not entirely dry. Going north on the Salt, room for deceleration is approximately limitless; going south it is severely, abruptly limited by the dike on which the highway is laid. On this northbound run Mick found out precisely what he could expect from his brakes when he had to decelerate in the opposite direction.

While he normally popped the 'chute near the eight-mile marker this time he waited to trip it until he had cleared the ten-mile sign. Then, with the 'chute's full pull working, he slammed on the wheel brakes. The car came to a stop in about two miles. This was valuable information to have gained. It involved wiping all the tread off the tires, leaving their fabric bare. He learned that this meant nothing. The Goodyear engineers said that the .030-in. tread was there just as a formality anyway; the carcass *was* the tire. They examined the skins and OK'd them for further high-speed use.

Monday afternoon, skies that had been totally clear began to grow increasingly cloudy and the pressure of worsening weather was added to the tensions that already were strong. Rain could be expected sometime the following day; it was Tuesday or never. Again, Mick and his crew worked deep into the night to have the car perfectly prepared. Again all hands were on the Salt long before the first hint of dawn.

The push car shoved him north at 6:40 a.m. As always, the engines prepared and maintained by Fritz Voigt sounded magnificent. Mick came storming past the two-mile marker, threw a shift but didn't make it. He blipped the engines and tried three times but burred gear teeth refused to mesh. He coasted through the traps at 195 mph.

Now there was no time to trailer the car back to the garage in Wendover. The car was torn down and the trans was repaired by an almost unbelievable display of effort, skill and devotion by Mick and his crew: Voigt, Emilio Noriega, George Foster, Jerry & Danny Callahan.

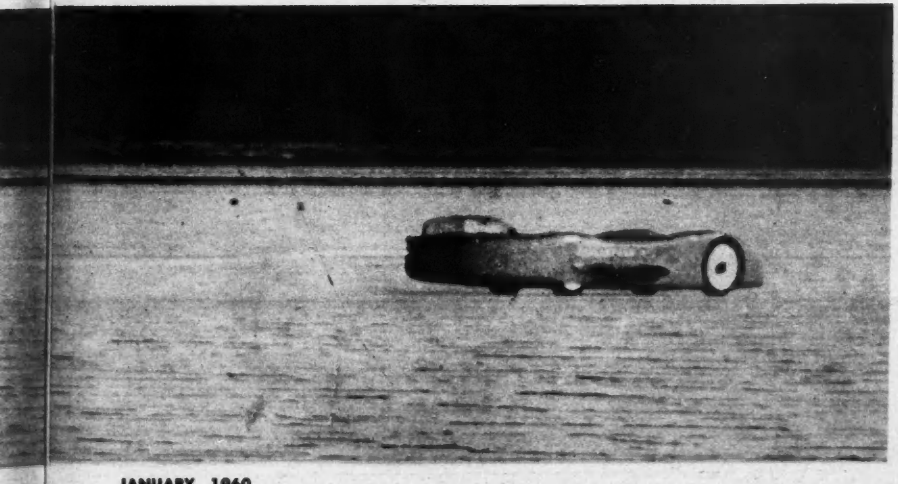
While this was taking place USAC's Art Pillsbury—who has timed all Land Speed Record runs on the Salt—gave Mick some sage counsel. "Look," he said, "we're running out of weather fast and you're still knocking yourself out to get the Big Record. It's still a good way off but you've shown that you can knock over every World Record from the five kilo to the ten mile any time you're ready. Why don't you make a pair of runs just to wrap them up for yourself? You'll have done something great and then you can chip away at the Big One as long as the weather holds."

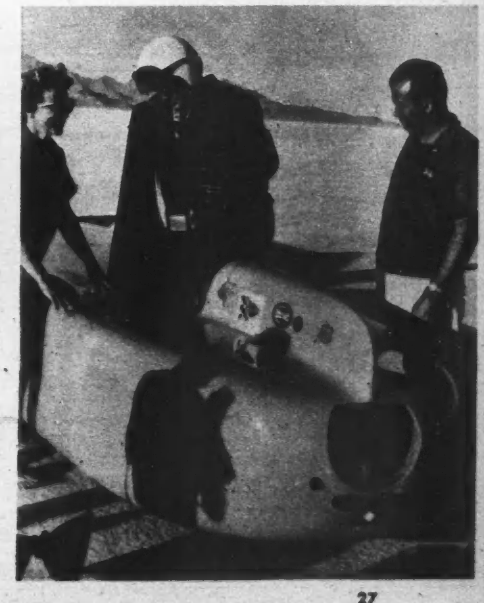
That's what Mick did and both runs went off like clockwork, between 11:55 and 12:45. As the overcast grew more dense and muggy the crew readied the car for the attacks on the kilo and mile, went from ten to 50 per cent nitromethane.

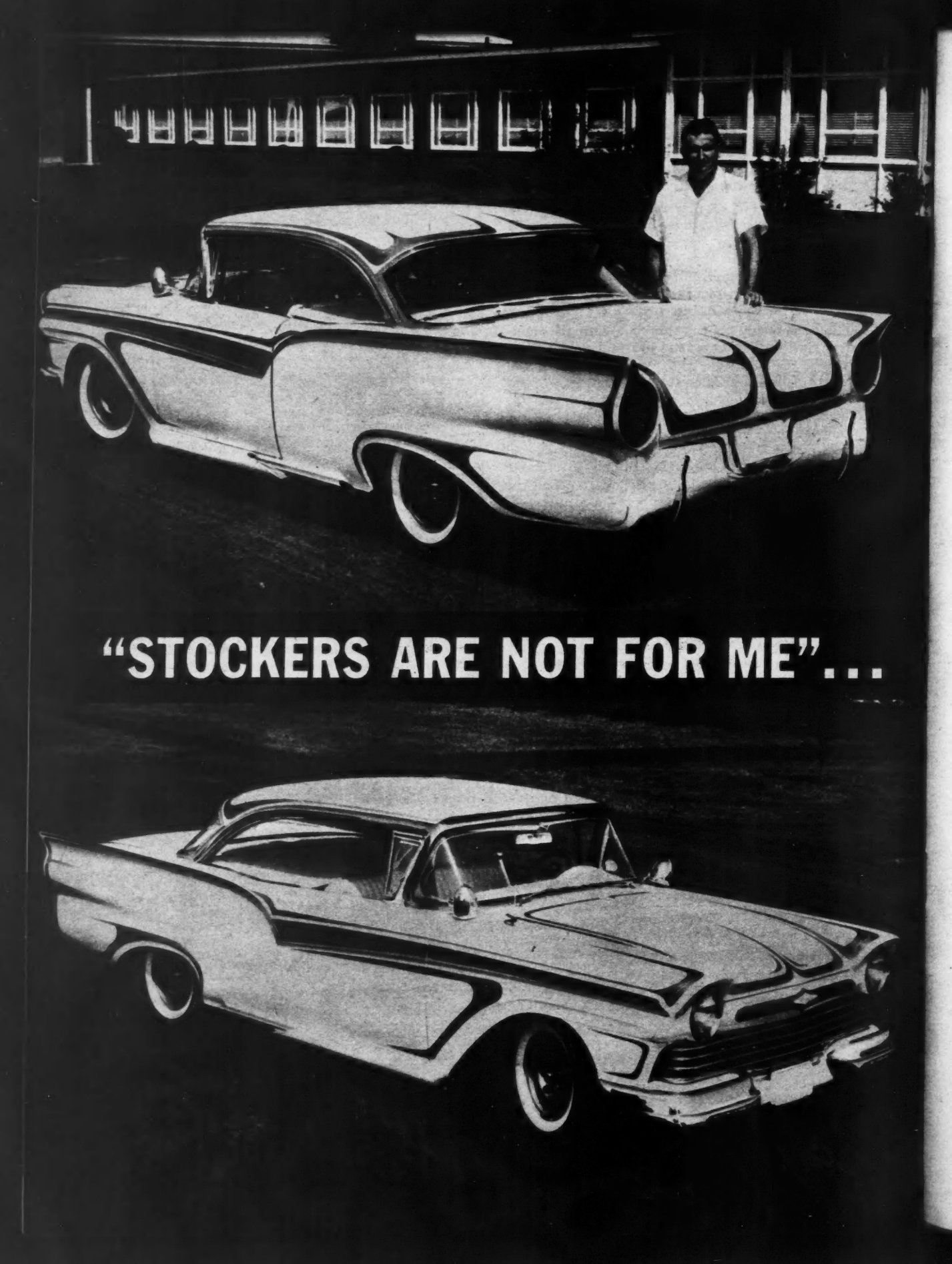
Starting at the north pit at 3:30 p.m. Mick made his final run. Blasting into the traps at 355 mph the tube from his breathing mask came adrift from the oxygen bottle which was mounted behind the seat. Breathing pungent, poisonous fuel and exhaust fumes he fought for consciousness and held on long enough to release the parachute. He was unconscious when they lifted him from the car and the weather of winter closed in with wind and rain.

By failing to crack the Big One, Mick may have been cheated out of most of the glory and gold that almost inevitably would have come his way. This is cruel because what he did on the Salt this year made memorable history. And the hero of the episode wasn't just Mickey Thompson. He deliberately set out to show the heights that can be reached within the hot-rod sport. Thanks to what he has done, against crushing odds, the stature of the sport never has been so great. Voluntary thanks for valuable services rendered are all-too-rarely given. We give Mick ours and, in doing so, we know that we speak for every thinking member of our sport.

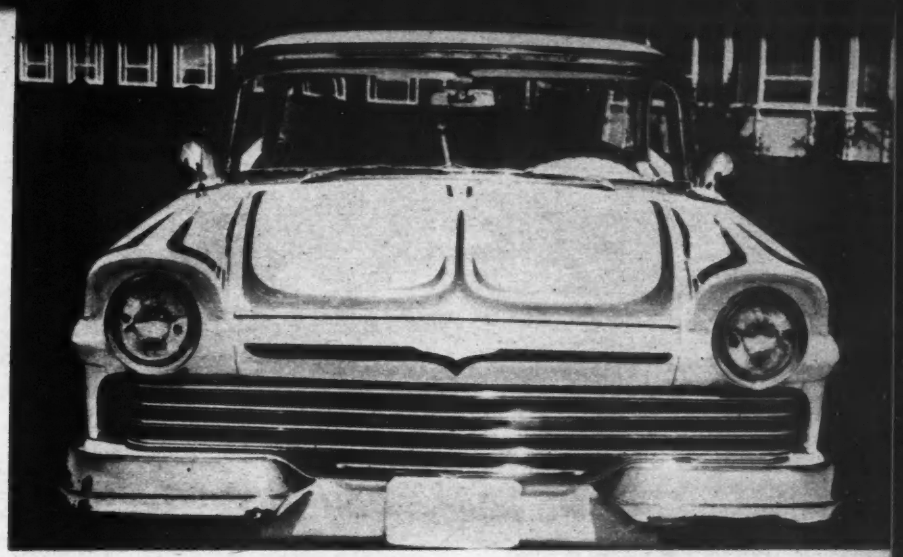
Photo at right shows Mickey's sideway method of entering cramped cockpit. Mick's number one fan, wife Judy, and Fritz Voigt are onlookers. Much credit must be given to Fritz, who built and tuned engines, and crew which he headed for over-coming many obstacles which presented themselves on Salt. A job well done.






"STOCKERS ARE NOT FOR ME"...

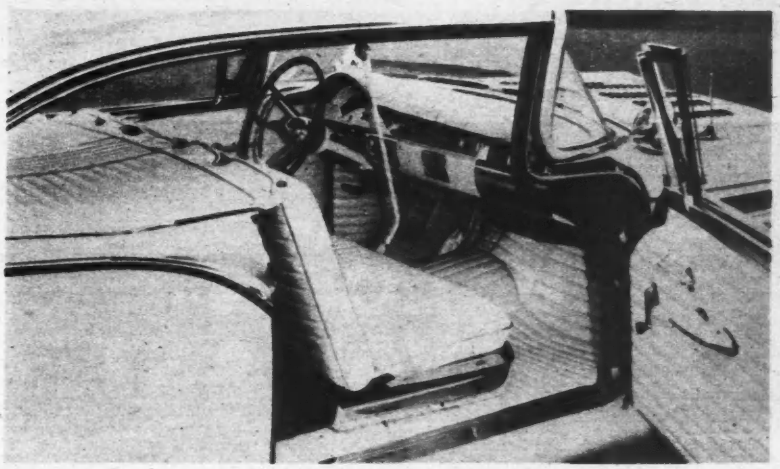
Photos by John Eddy



Tubular grille, much resembling those on accessory market, handmade of ¾" stainless steel tubing. '56 Ford pickup truck ring surrounds headlights. Stock bumpers split, section filled with pan.

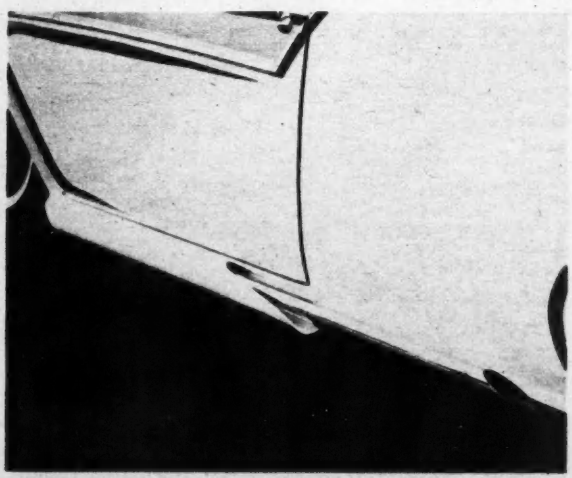
John North of Rockville, Conn., poses with his '57 Ford coupe. With polish rag in hand he maintains white paint with gold scallop trim. Rear pan rolled, uses nerf iron for protection. Taillights frenched, lenses are ⅛" flat plastic.

Connecticut custom has a California rake done via cut coils; a special competition stabilizer bar added to insure safe ride. Handmade, chromed Traction Master bars used in rear for same purpose. Town Line Auto Body metalwork.

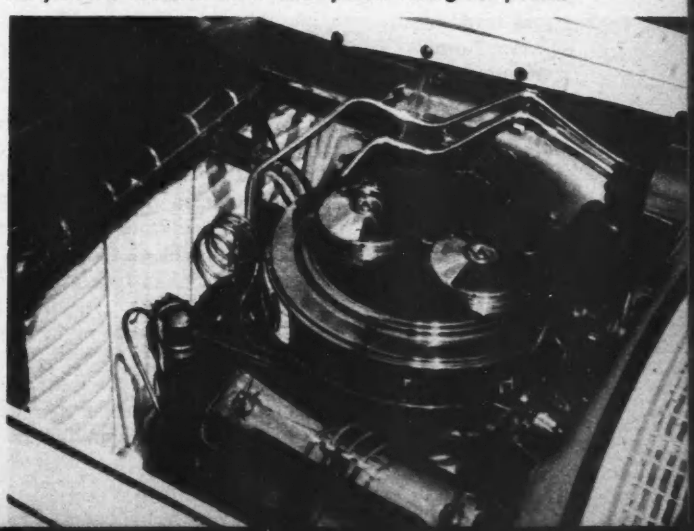


Sparkling chrome accessories are off-set only by white Naugahyde upholstered interior stitched by Plaza Auto Covers of Hartford, Conn. Pleats and rolls are the theme for seats, door panels, rugs, dash cover, rear seat tarp. Note shift lever.

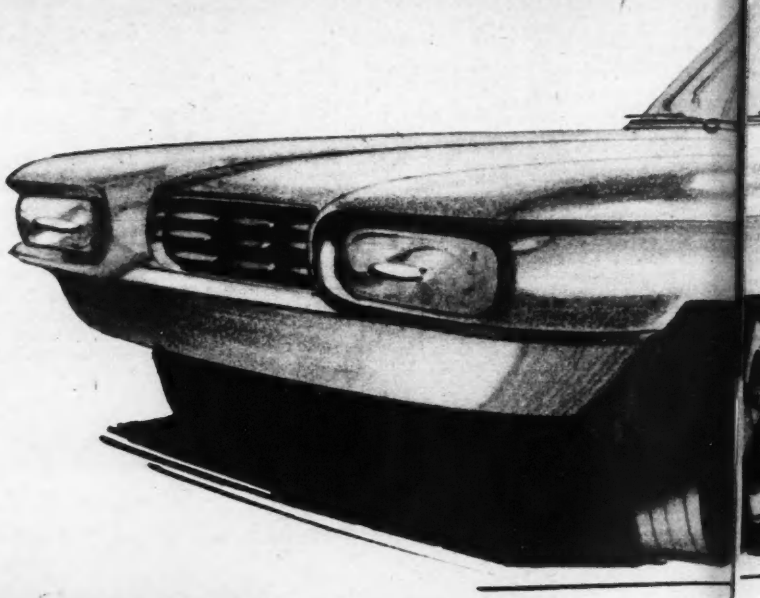
Chromed exhaust pipe is mounted just below door and runs length of the body. Non-functional, it is covered by shield.



Engine is chromed for show, is a stock '57 Ford mill. Notice the padded radiator cover and special tubing for points.



BARRIS KUSTOM RESTYLES



the CORVAIR-FALCON-VALIANT

IT IS NO SECRET that the introduction of the Three Small Cars by the Big Three manufacturers a few months ago might prove to be a turning point in the automotive industry. This might hold true with customizing. When we first viewed the cars we knew that they would open another new field for custom enthusiasts. To give us an idea of what could be done with the small cars – the Corvair, the Falcon and the Valiant, we asked George Barris of Barris Kustom in Lynwood, California to give us his interpretations. The costs did not exceed $1000, but due to lack of space we cannot include the price lists.

All three cars have a few things in common. First, both front and rear bumpers are removed. The pans are all rolled. They all feature quad headlights. And none of the cars escaped some form of reworked or rolled panel lips.

The headlights represent something new. True, they are quad units. The Corvair has them placed horizontally, the Falcon used a canted position, and the Valiant utilizes a triangle-shaped placement. The unique design feature is that they are placed behind clear plastic shields. The plastic covering smooths the headlight opening, adds a definite new look to the area. This we chance, will be a new fad before long. Door handles are discarded on all three. The Corvair and Falcon have specially designed roof scoops. This new concept in roof scoops might bear watching along with the headlight idea.

On these four pages are illustrations of the restyled Corvair, Falcon and Valiant. We suspect that it won't be long until you'll be seeing actual photographs of customized small cars.

Illustrations by Larry Evans

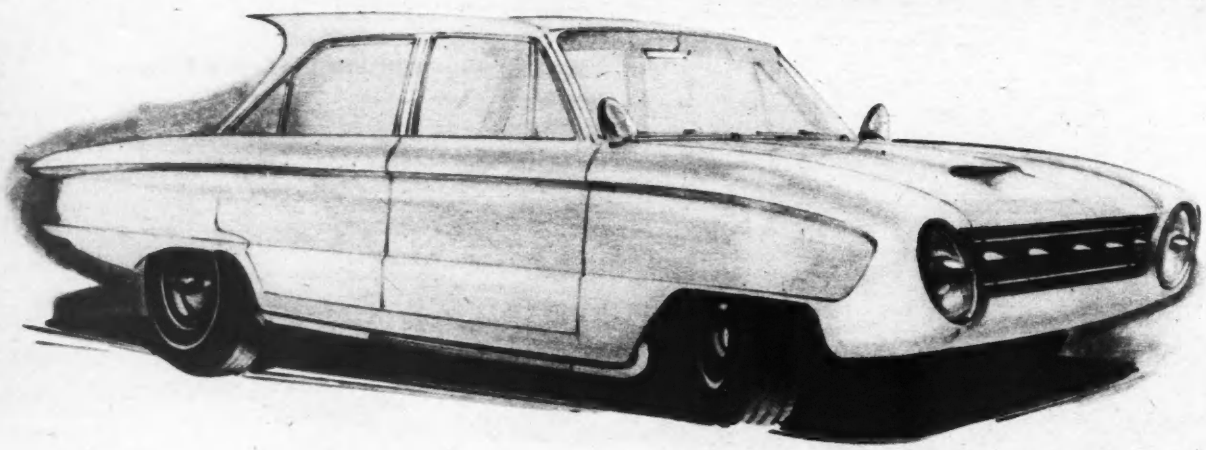
Chevy's Corvair is sans bumpers; front, rear pans are rolled. Headlights are quad units, mounted behind clear plastic covering. On plastic cover is hardware pull handle. Side trim is special, frames contrasting paint area. Grille is made of floating bullets, oblong in shape. Both front, rear fenders are extended. Rear house Pontiac taillights. Rear end grille is employed similar to forward assembly. License plate is in sunken position between grille pieces. Roof features dual scoops which are oblong, extend rearward over glass area. The centers can be filled with plastic tips. Existing body lines are sharpened and extended to lend more of a sculptured appearance. Just aft of rear door is an airscoop in fender. This also serves to feed air to engine. Note tires and discs.

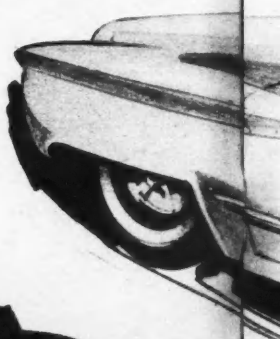
CONTINUED

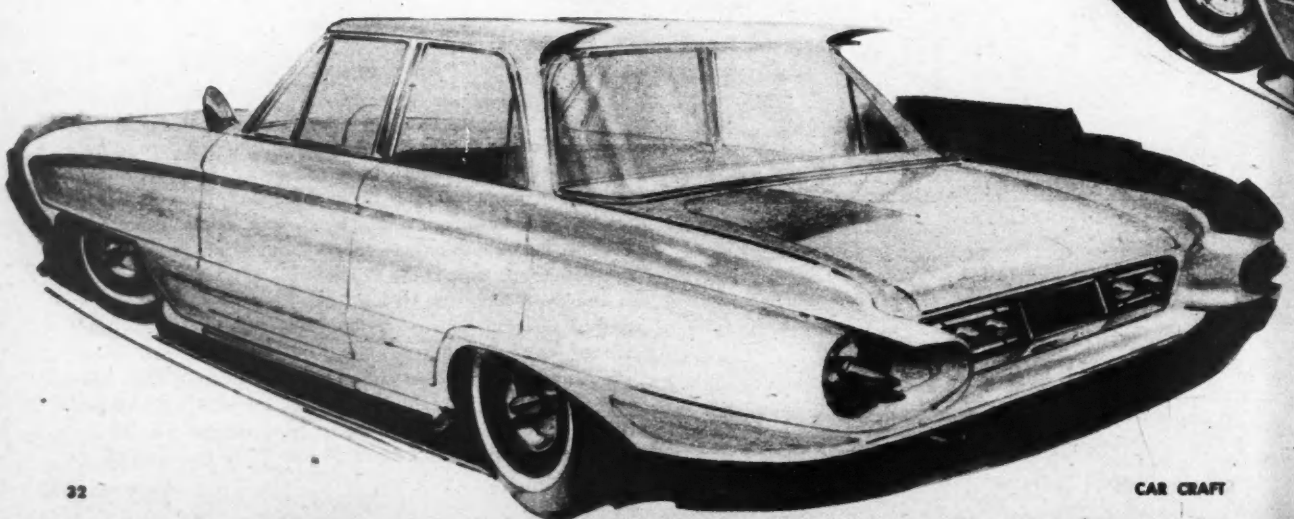
restyling the

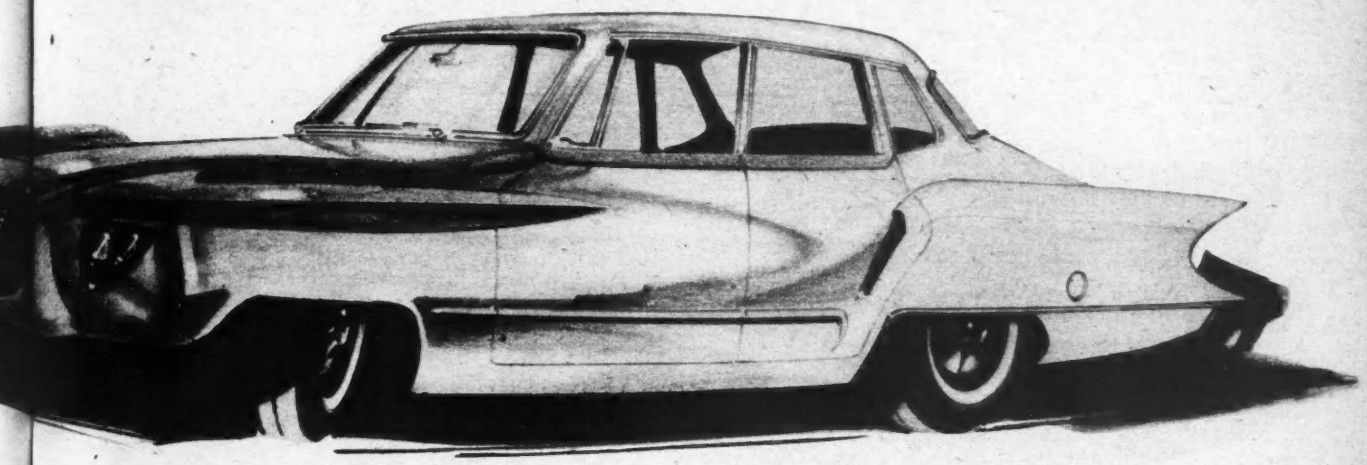
CORVAIR
FALCON
VALIANT

Ford's Falcon has definite sculptured look to its body lines, so George has taken advantage of this and exaggerated the lines. Headlights are canted, plastic covered quads with chrome bullet mounted on surface between lamps. Grille is of straight bar and bullet construction in front with rolled pan, no bumper. Hood airscoop countersunk; door handles, all trim are removed. Front wheel well is smaller due to an added portion of metal. Roof has swept-back fins on either side with protruding antennas in ends. Taillights are '59 Cadillac frenched into opening. Fender is greatly extended to form hood over and around lights. A rear end grille is same as front except for center mounted license plate. Rear pan is also rolled; spotlights and side pipes are optional.

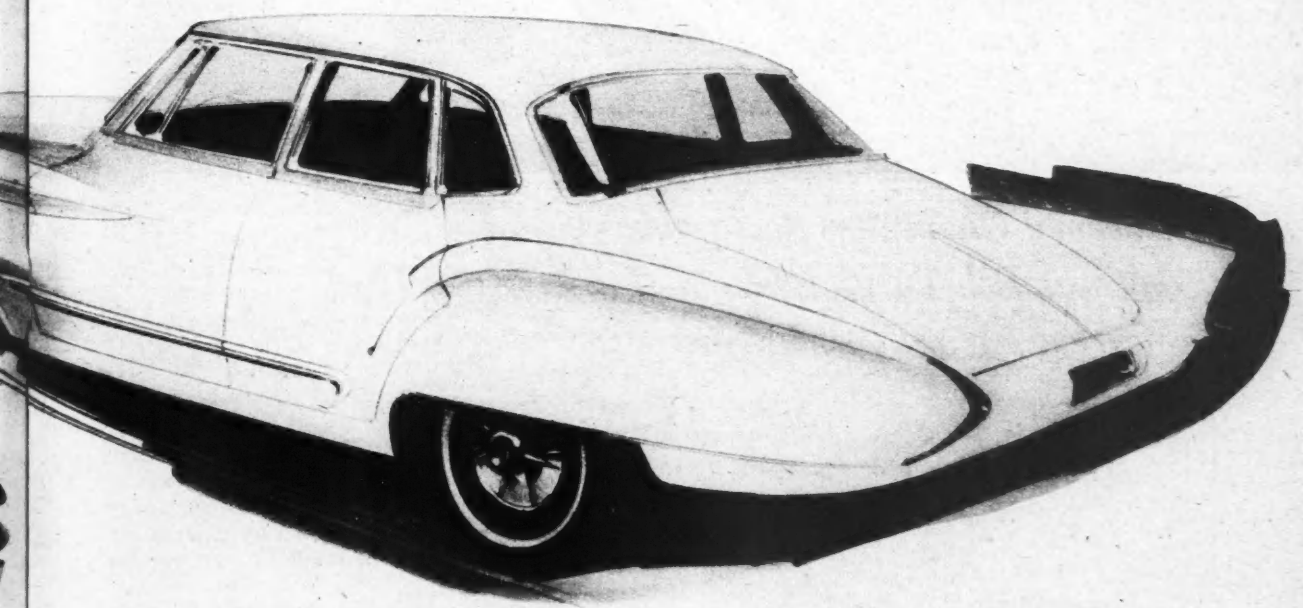




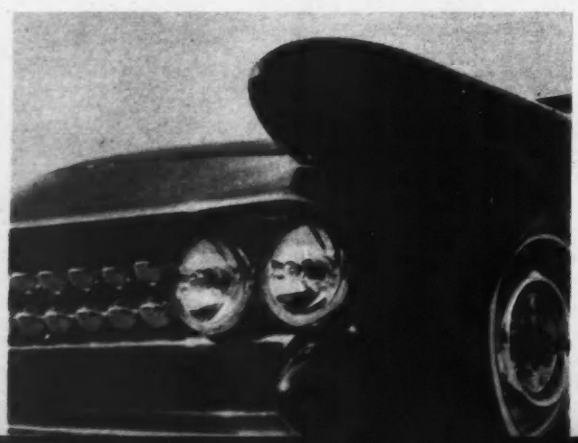




Chrysler's Valiant is a design combination of old and new lines, tastefully accomplished. Front grille shell is extended and houses a mesh screen grille. Pan is rolled, uses no bumper. Headlights are quads behind triangular shaped plastic covering. Wheel well openings are reshaped. Front, rear fenders are rolled under. Chrome trim is reversed. Airscoop is cut into the rear fenders which are recontoured to a 'V' shape and house a set of Lucite constructed taillights in tips. The spare tire on the trunk is removed, license plate is sunk into the lower rear panel. Rear fenders now match the protruding panel found on the front fenders. Door handles are removed, solenoid system used. Thin white side wall tires and wheel discs similar to Cad caps add to appearance.



'59 National Champion Sweepstake Award — that was Bob Turgeon's aim — his sleek '57 'Bird is new champ of the show-cars



Originality — sleekness — workmanship, these were the prime factors that achieved the title of "Champ of the Show-Cars" for Bob Turgeon's Candy Apple '57 Ford Thunderbird sports roadster at this year's first annual National Champion Custom Car Show recently staged in Detroit, Michigan. 'Bird represents a total of seven thousand dollars expenditures; created by Darryl Starbird, Star Kustom, Wichita, Kansas.

Extensive disguise of custom work features bullet shaped extended fenders integral with special grille cavity housing combination quad English Lucas headlamps and accessory bullet trim work. Pan extended, trimmed neatly with chrome.

Photos by Pat Brollier

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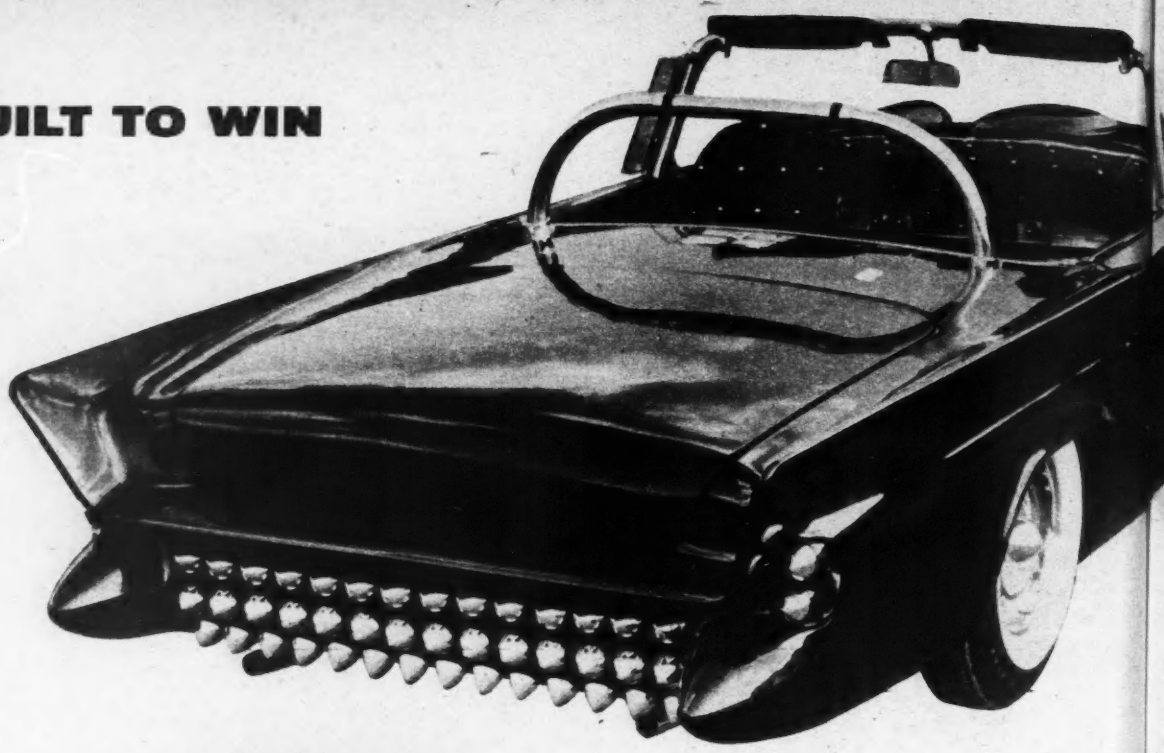
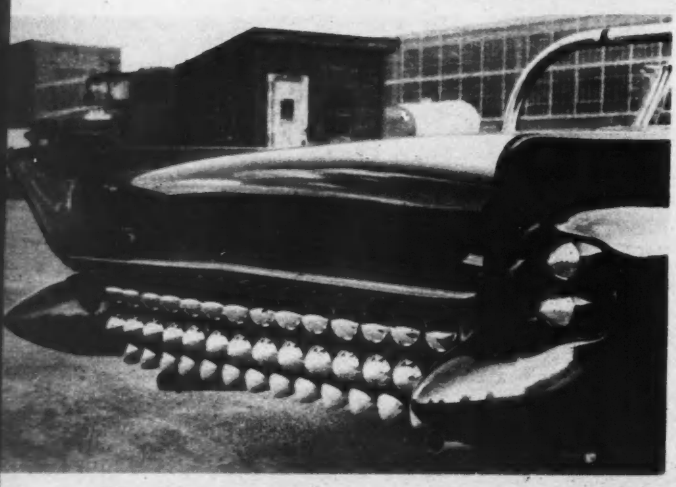
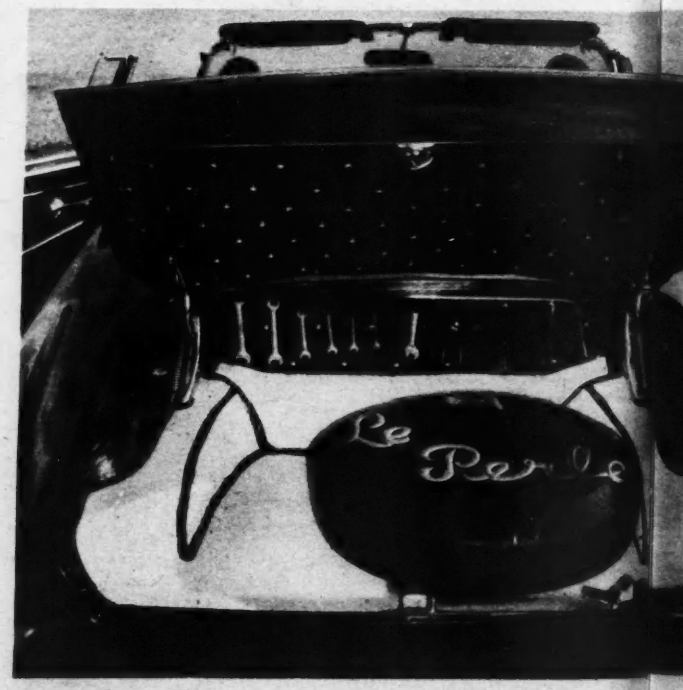
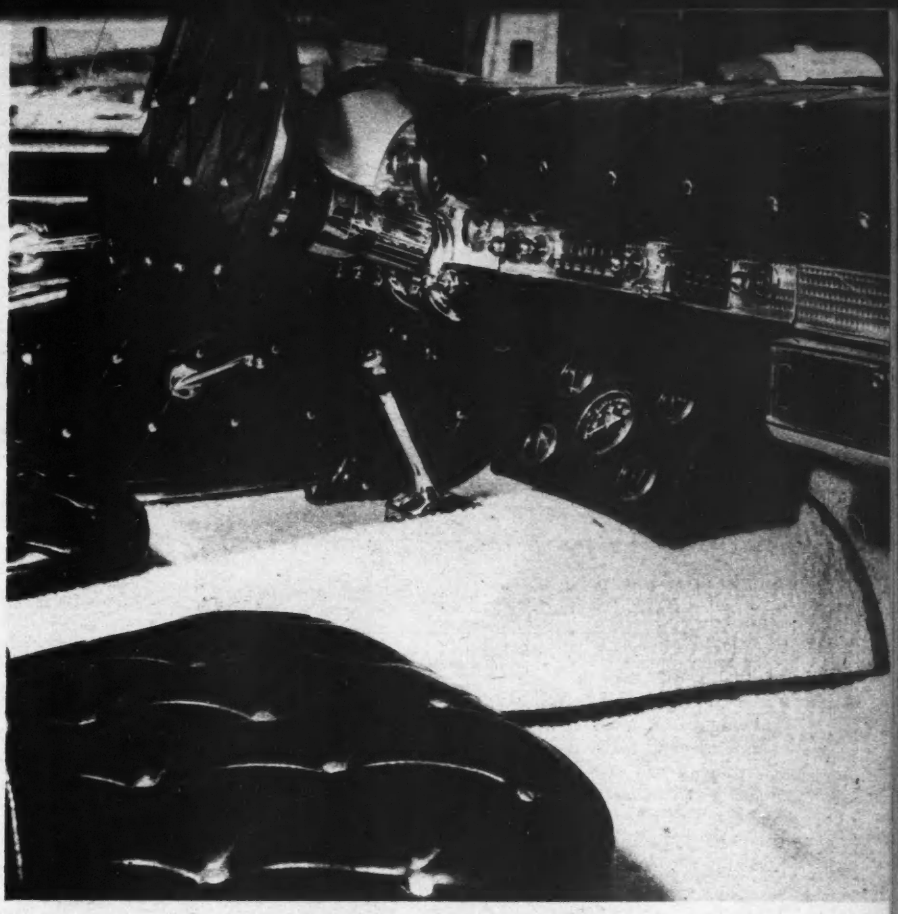
BUILT TO WIN



Rear view of the immaculately detailed sportster offers the same sculptured appearance; finned and extended rear fenders, decorative bullet application, quad '59 Dodge taillights with bullets tunneled into side fender cavities, and matching flared fender openings front and rear. Chromed reverse wheels are real sparklers as well as the decor and appearance of fully upholstered rear trunk compartment.

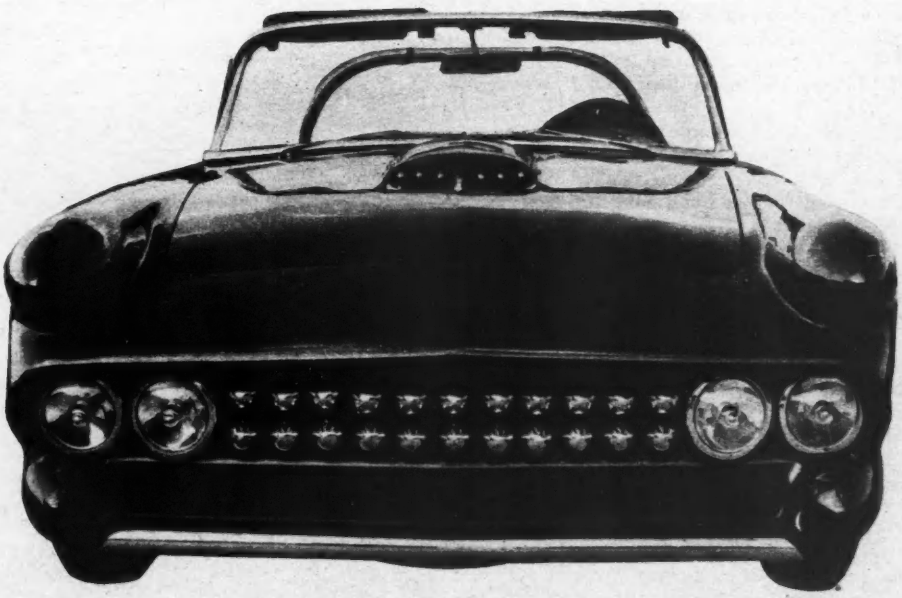






Nothing is left to be desired in cockpit for comfort and luxury. Individual seats are featured along with special center-dash and record player. Upholstery theme performed by Bob Barngrover, Custom Auto Trim, Topeka, is carried through in black / white Naugahyde, diamond motif, tufted/chrome buttons. Engine room presents similar detailing with upholstered hood pad, all-chromed powerplant. Not seen is the undercarriage which is completely chromed, sparkling against painted/hand-rubbed body panels and frame rails. When car is displayed at auto shows it is tilted at an angle so that spectators get full view of the fine car's below surface beauty.

Large tubing was employed to border and mold in upper and side edges of grille. Stock hood scoop has been retained but has been given slight revision in appearance with altered opening and chrome trim bars. Turgeon and Starbird built car strictly for run at National Sweepstakes Award — and made it. Real story behind highly competitive victory is they built the car, start-to-finish, in only five weeks!



CAR CLUB OF THE YEAR

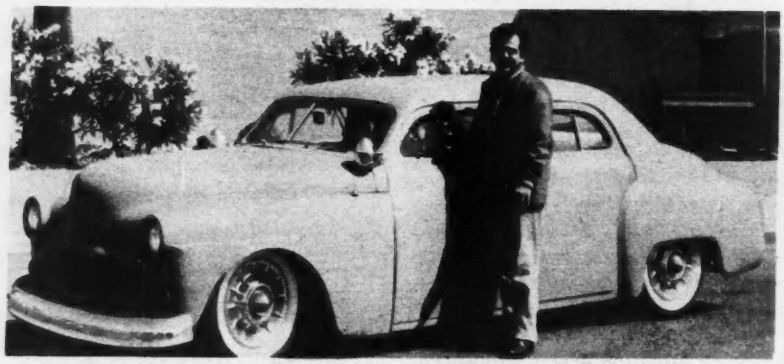
GIVING TO THE NEEDY, donating blood, participating in safety campaigns, and many other worthwhile activities all add up when it came time to select the winner of the Second Annual Car Craft Magazine "Car Club Of The Year". Taking this honor are the Rod and Wheelers of San Jose, California, who were rightly chosen from the hundreds of entries received in this second and bigger contest.

Formed in 1952 with but one car of show caliber, this number has been increased to 20, since one of the club's regulations state a member must have a show car within a certain period of time after joining. This creates a spirit of forever onward, which the club members' cars on the following pages attest to. Besides the individual cars, they have a club car, a '34 coupe powered by a healthy Chrysler, to keep up the "club" spirit.

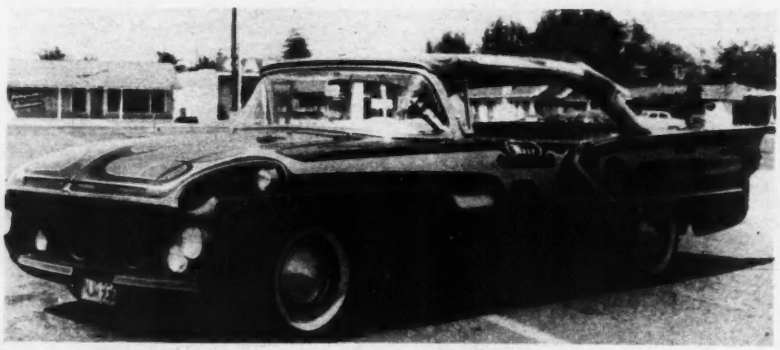
Worthwhile activities participated in this year include: blood donations to the Red Cross, monetary donations to the Saints and Sinners Milk Fund and the Bill Vukovich and Jay Cheatham Memorial Funds, door-to-door visits to aid needy families in the area. The Mayor of San Jose has also requested the club participate in the annual parade in the city.

Weekly meetings are held at club member Gene Carvello's custom shop to discuss plans for shows, drags, dances, etc. The pictured trophies are all club earned, individually earned trophies total over 200, some for go, most for show, as eight cars featured on magazine covers prove.

So you can see, the Rod and Wheelers of San Jose have been a very active group this past year, and rightly deserve the crown of "Car Club of the Year."

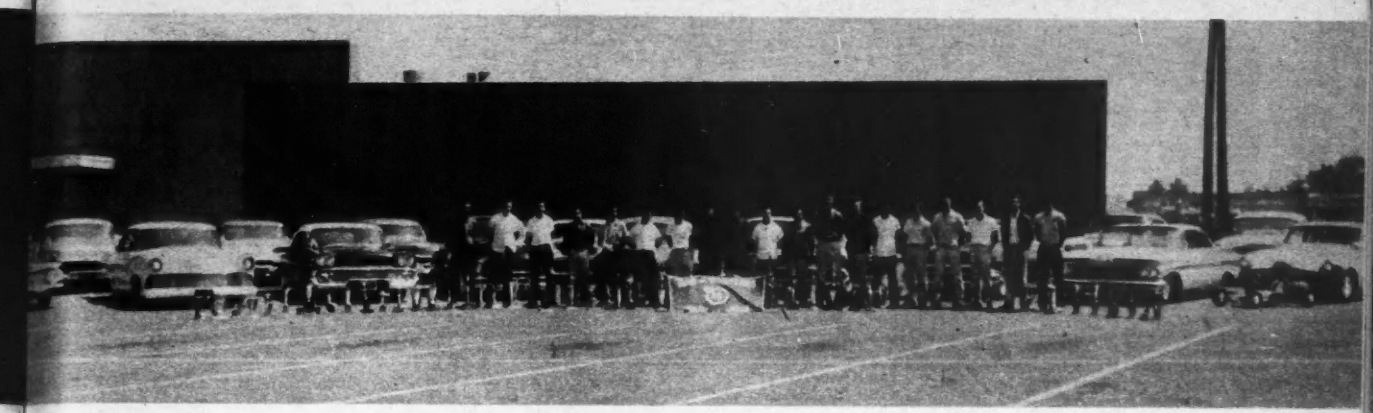


PHIL MACCHARILLA. Chopped '50 Plymouth 4-door features rolled pan, custom taillights, dechrome job. In primer, being readied for body section job by Wilhelm.

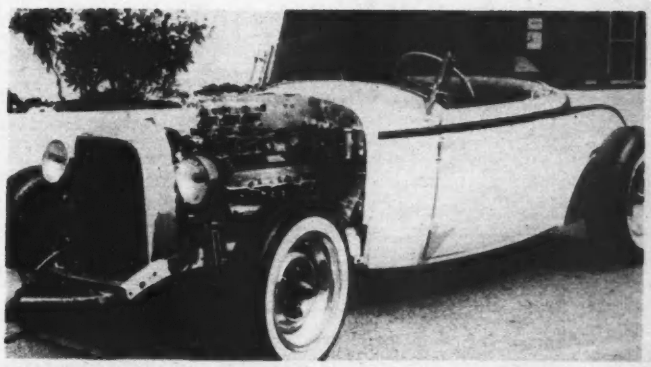


JERRY DEVITO. It's many lights on Jerry's '57 Ford. Total of six adorn radically designed front-end, done by Gene Carvello. This sextet may start something new.

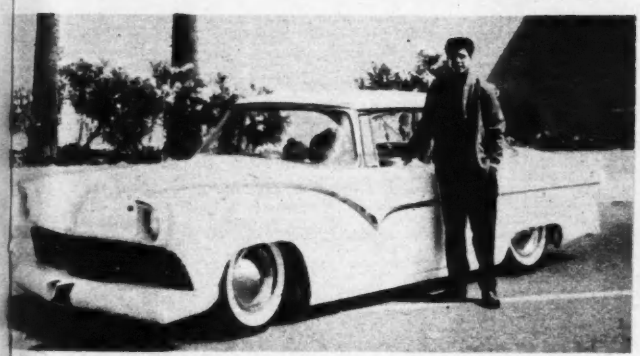
JIM DOYLE. Enchanted '52 Merc received treatment by Joe Bailon of Hayward. Different approach is enhanced by the Candy Apple and Pearl finish by Jeffries.



CHUCK BURKHART. Custom interior is highlighted by scallops over purple lacquer on Impala. Front has tube grille.



BILL MOORE. 115 mph deuce has been cover car, holds 43 trophies, a custom interior, chrome suspension, pearl paint.



LARRY MAMMINI. Rolled pans set off custom lights fore and aft on Pearl '55 Ford. Custom interior is in red-white pleats.

JIM AUGUSTINE. '55 Candy Bird is well known cover car by Bailon. Rolled pans, quad lights, custom grille are changes.

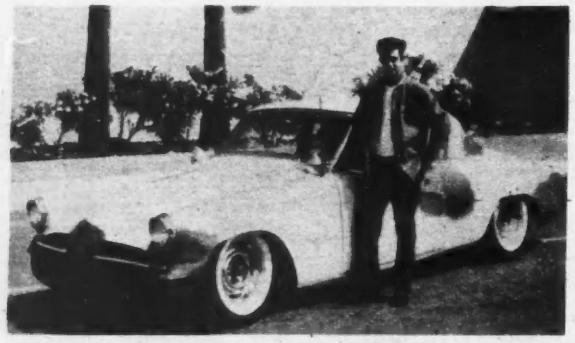
MEL SACCOMANO. Nosed, decked '53 runs T-Bird mill, Pulled out of shop for photo, Mel has more plans for car.

LOUIS STOJANOVICH. Candy '47 Plymouth is a winner. '54 Chrysler adds punch to its go-power. Body is reworked.

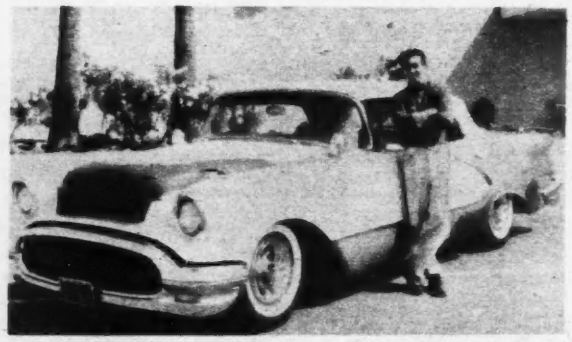
CONTINUED

CAR CLUB OF THE YEAR

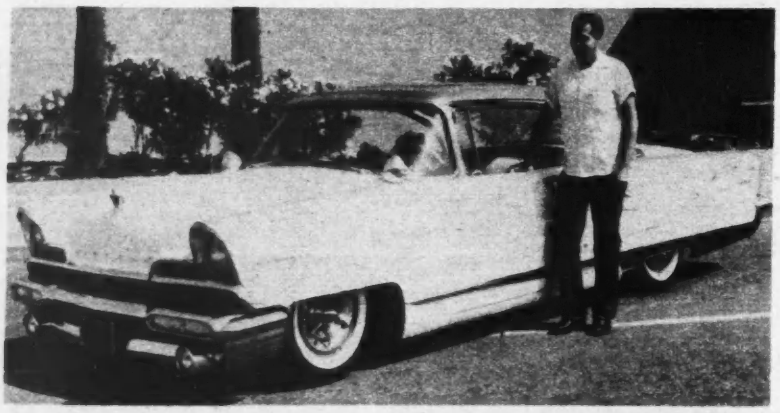
DON KRAYLEVICH. Candy Burgundy convert is another hot dog at drags. Custom interior, top, Appleton spots, pipes.



TONY ROSE. Taken from the custom shop for picture taking, Tony's '53 Stude is lowered, runs chromed wheels, custom interior, Appleton spots, is dechromed. Future work planned.

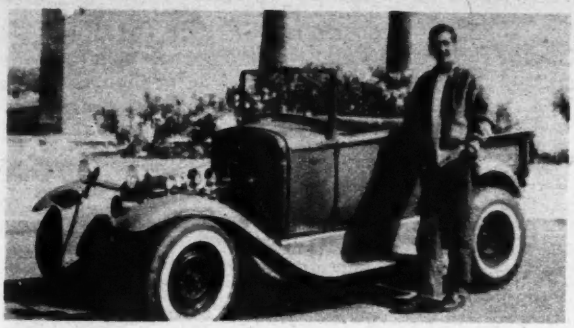


PETE YERKOVICH. '56 Olds features full custom interior in rolled/pleated Naugahyde. Still under ax, convert features lowering, nose/deck job, twin scoops in hood, chrome teeth.



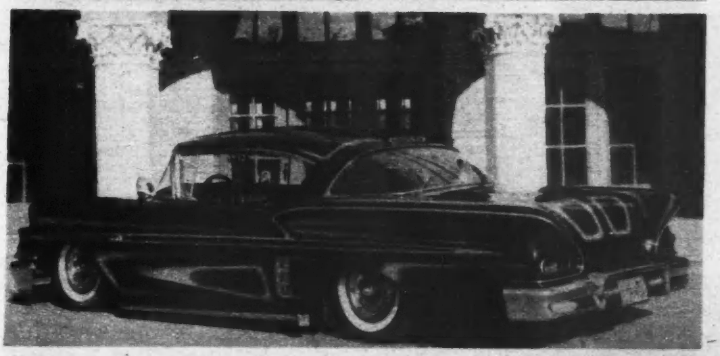
DICK BANGEY. A car of distinction, '56 Lincoln is finished in pearl and orange lacquer, while interior is fully upholstered. Engine is chromed, hopped up.

BOB SMITH. Recently purchased '59 has slight grille change, lowered, Bob plans to have car chopped shortly, should be finished by the time story is published.



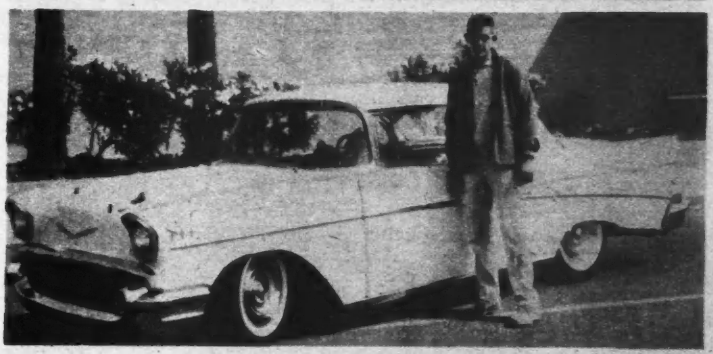
GENE CARVELLO. *Gene fills the bill as club customizer, constructing Coparia's Chev and Devito's Ford. Customizing the cars of his friends therefore leaves him little time to finish his own rod, clean "A" pickup roadster, Merc mill.*

JASPER COPARIA. *Wildly restyled front end of '50 Chev received the treatment by Gene Carvello, Quad lites featured fore/aft, lime green and gold lacquer.*



FUZZ THE STRIPER. *Purple and white '57 Chev runs a 270 Corvette bathed in lots of chrome goodies. Interior, trunk are totally done over in rolls and pleats.*

FRANK GEORHING. *Custom rear blinkers, frantic headlights, and custom interior with reworked dash, set off by black lacquer, and an array of scallops.*



STEVE SHERICKE. *Top runner in C/Gas class at drags, '57 Chev sports full pleated/rolled interior, engine chromed.*

JACK STANLEY. *With a potent Chrysler mill hiding under louvered hood, this Chev is for show and go. Chrome and interior in rolls and pleats set off car.*

JOE MANIALA. *Meeting the first name requirements of club title, '58 Impala is consistent trophy winner on the strips. Joe has plans laid along custom route.*

35 extra horses with king-size 4 barrel

by John Geraghty

Jim Boecignone and John Geraghty check over advantages of large Oldsmobile four-barrel carburetor.

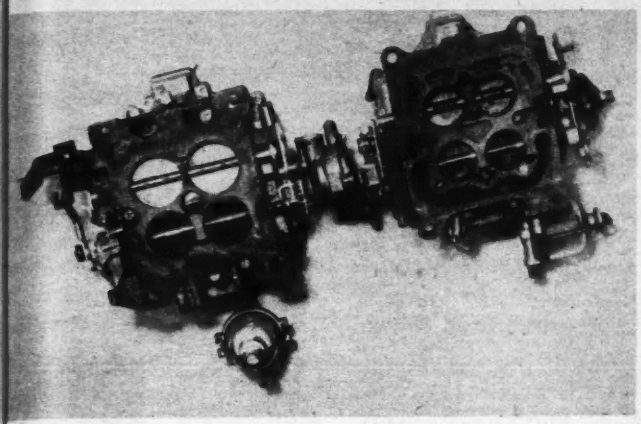
RPM	H.P. *BEFORE*	H.P. *AFTER*
2500	85	87
3000	116	122
3500	145	160
4000	160	180
4500	180	205
5000	175	215

ALTHOUGH THE INCREASE in carburetion of any engine is one of the main steps in high performance modifications, nothing is more exasperating than a foul running, multiple carbureted engine. This is especially true on cars used for daily driving. This problem usually stems from misaligned linkage, overrich conditions due to multiple idle and accelerator pump systems, or improper throttle operation at low engine speed. An example of what might take place is as follows; full throttle operation at low engine rpm under extreme load will reduce engine torque. The intake and exhaust valves being open at the same time will allow the exhaust pressure which is greater than the atmospheric pressure of the intake charge to push the fuel-air ratio back through and out the ports of the carburetor throat.

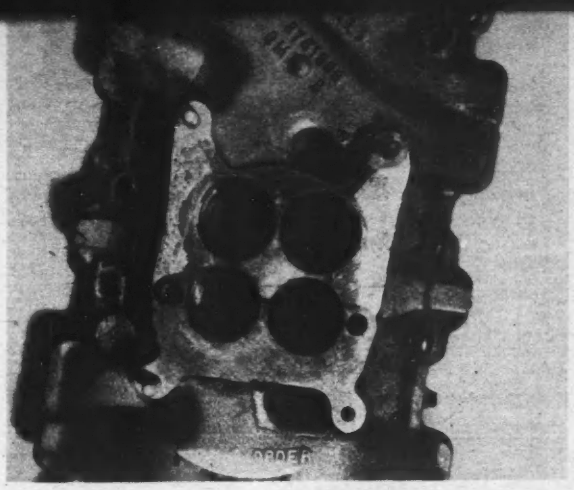
The stock four barrel carburetor found on the smaller V8 Chevrolet engines, although free from these problems, has one common deficiency. The smaller venturi areas of these carburetors limit the high rpm horsepower by restricting the breathing ability of the engine. Many larger stock four barrel carburetors from other makes will furnish the necessary fuel-air ratio at these high rpm's producing peak performance – but an adaptation problem has existed due to the design of the Chev's intake manifold.

One of these larger four barrel carburetors that possesses an identical base bolt pattern to that of the Chevrolet is the '59 Oldsmobile Rochester carburetor. The increased venturi area and vacuum controlled secondary systems produce the performance desired and eliminate the restrictive carburetion problem discussed. The basic problem is that of modifying the Chev's manifold to match the larger Oldsmobile carburetor's throttle bore. The modification is actually relatively simple and is thoroughly illustrated in the following step-by-step photo story.

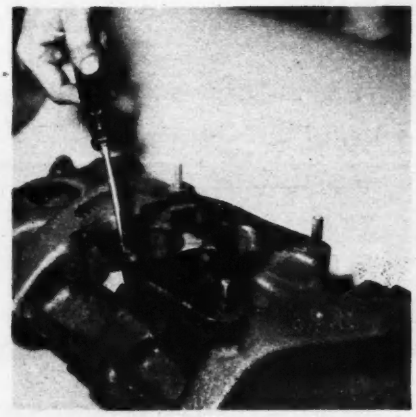
A series of horsepower checks were were taken at specific engine rpm and logged on the accompanying chart for a *before* and *after* comparison. With the increased horsepower the modification proved itself equally well while under fire at the drags. A full second was whittled from elapsed time and a four miles-per-hour boost was tacked onto the top speed.



Increased throttle bore is easily seen when comparing the stock Chev carburetor to the '59 Oldsmobile four-barrel.



Stock manifold was filled with brass rod surrounding the secondary throttle base allowing stock bore to be increased.



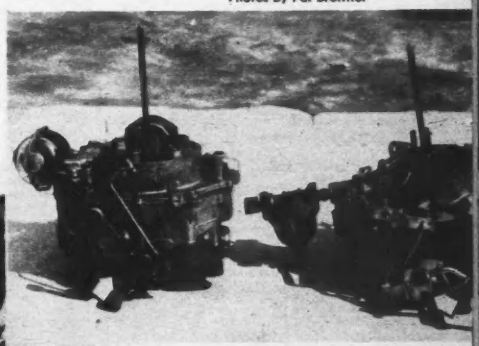
Stock '59 Oldsmobile base gasket must be used to eliminate exhaust leakage from the heat riser port shown above.

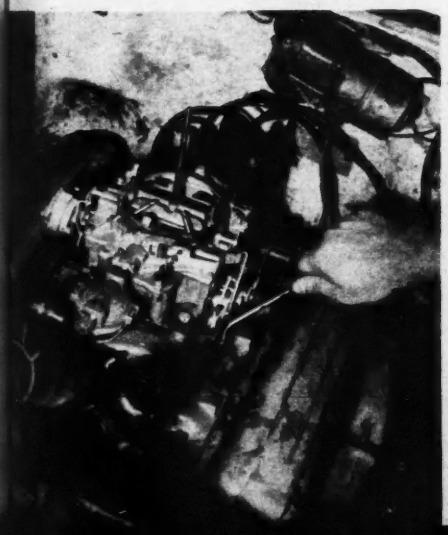
The modified manifold (right) as compared to stock Chev manifold illustrates increased port area with '59 Olds carb.

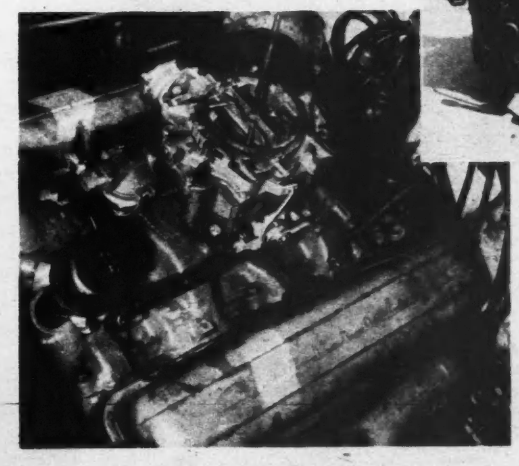
Photos by Pat Brollier

The complete Oldsmobile carburetor's linkage may be kept as shown below. The only modification needed concerns Chev's stock throttle actuation rod. On all manual transmission conversions the throttle rod is shortened 2-inches.

Install manifold and Olds carburetor in same manner as stock; only modification will concern the stock throttle rod.

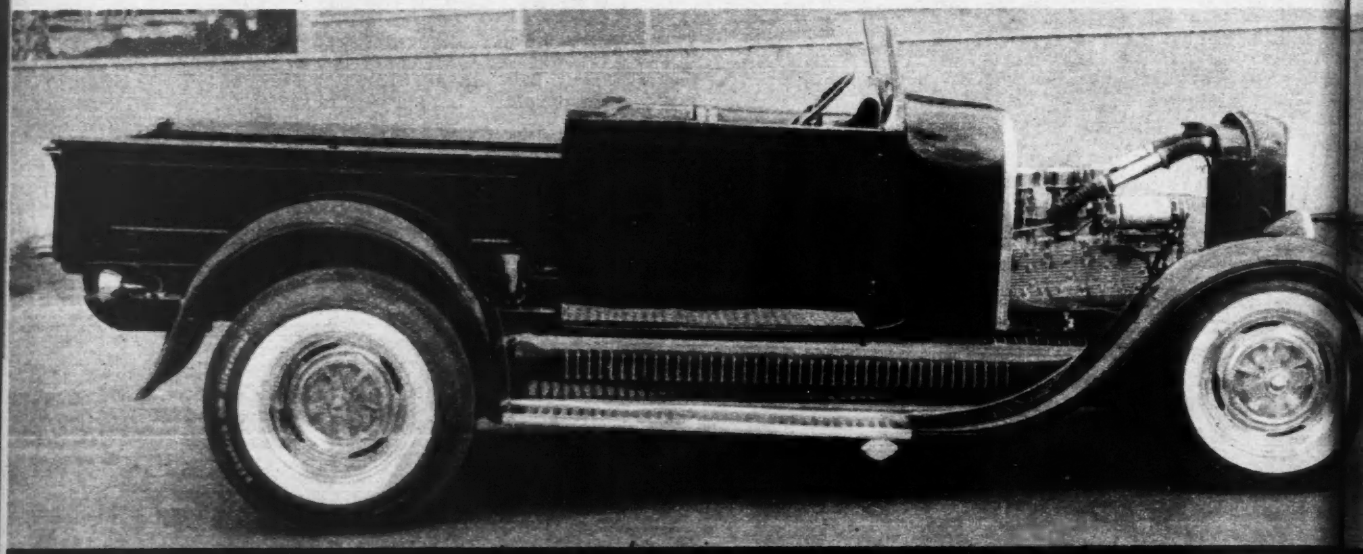






For all automatic transmission conversions the throttle arms (arrow) must be removed and the stock arm installed on the larger Oldsmobile carburetor to operate variable throttle pressure trans rod properly.

Beautiful black lacquered '28 Ford roadster-pickup was built by owner Ray Silva of San Jose, California and Joe Wilhelm of Wilhelm's Customs. Windshield is chopped 5-inches; '32 Ford dropped axle is used forward with Model A suspension.



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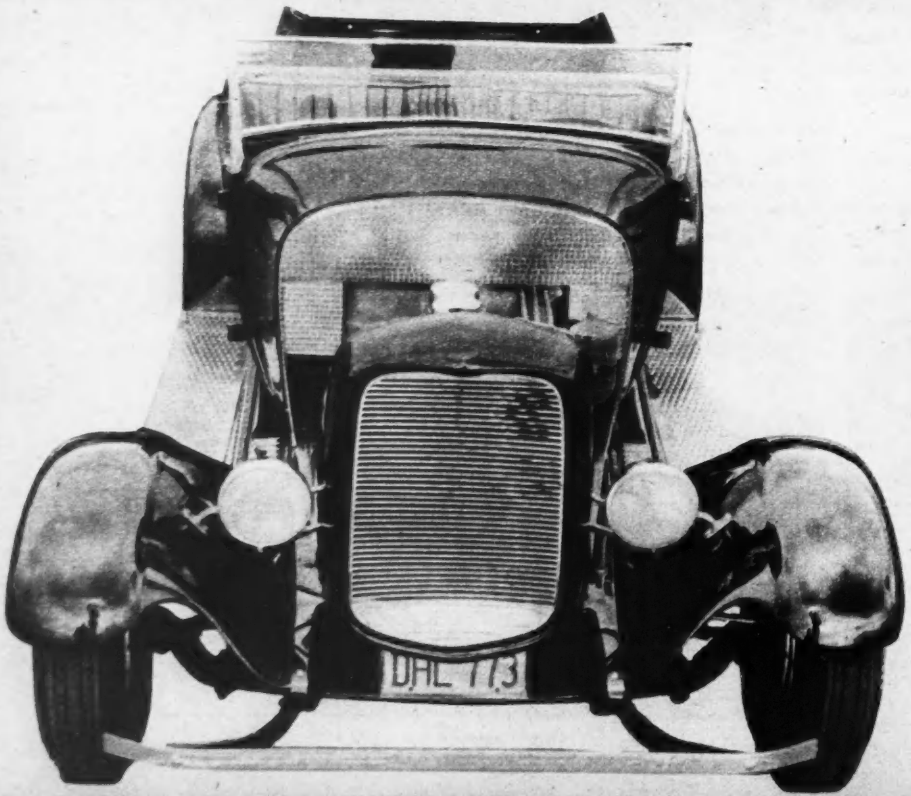
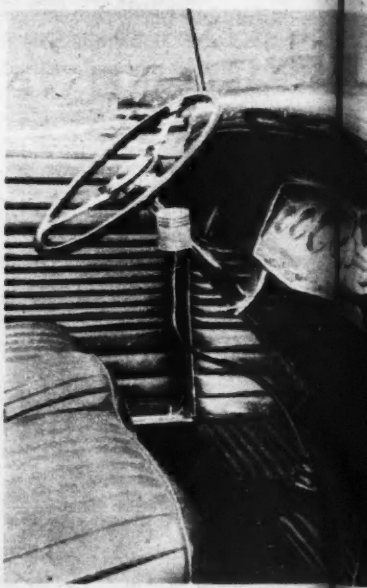
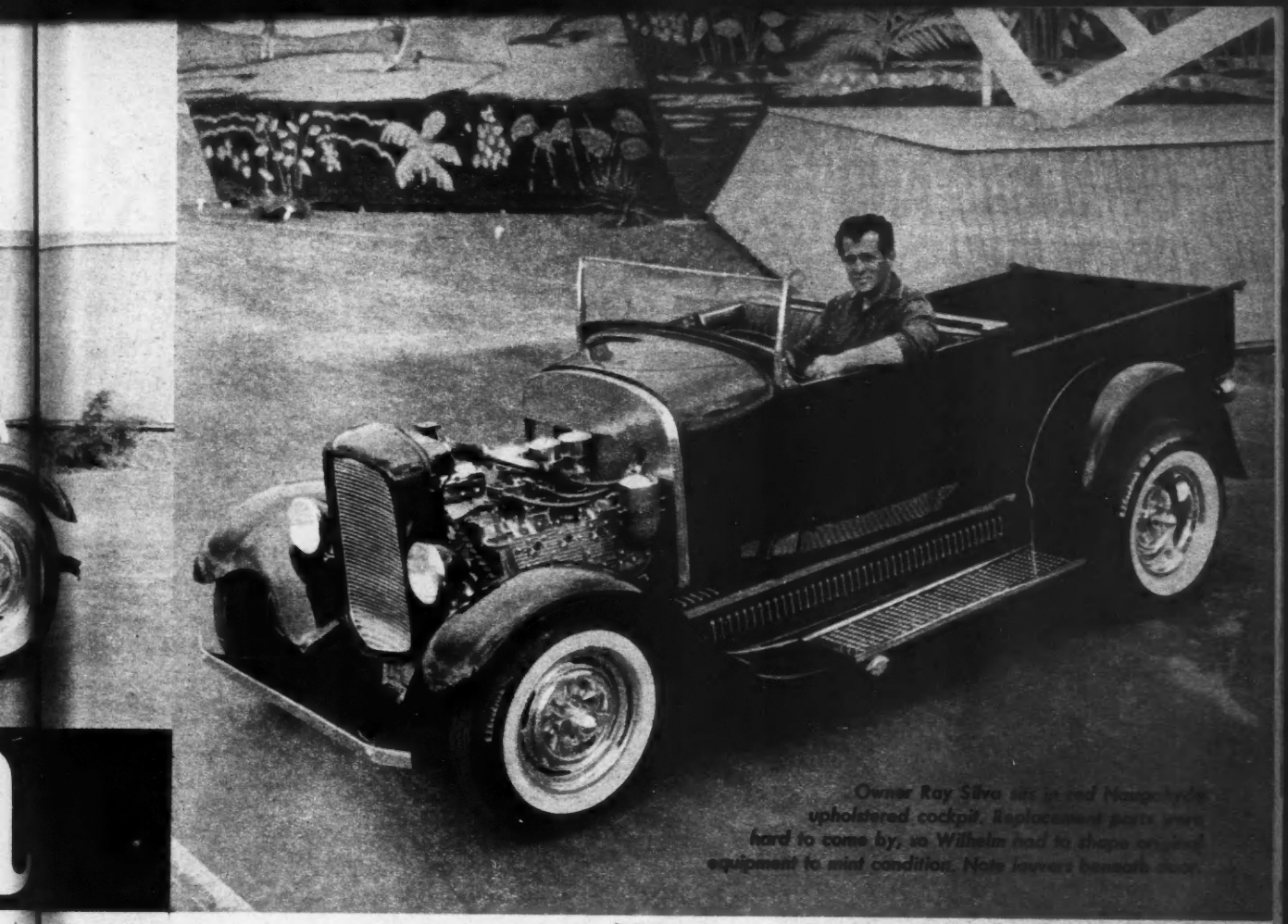
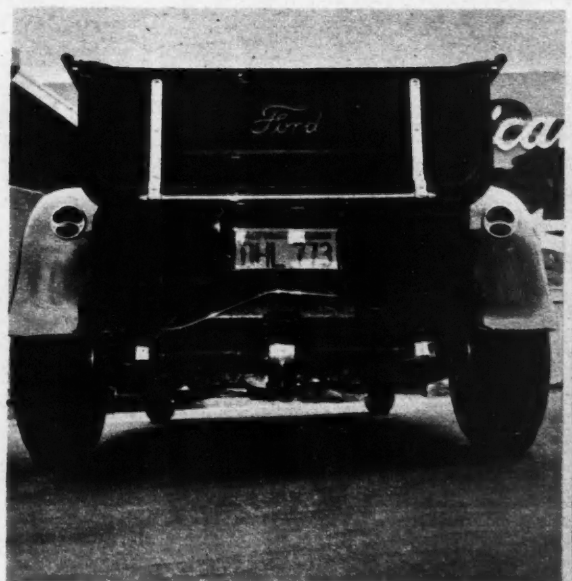


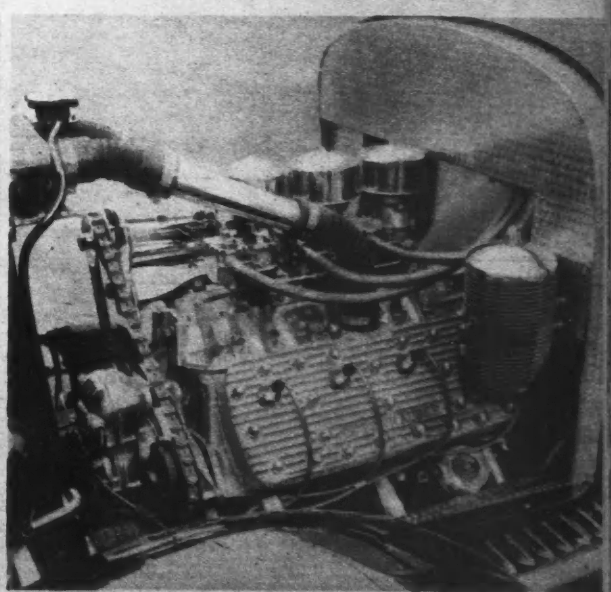


Running boards, firewall and grille sparkle; '32 shell has been filled, special chromed tube grille assembly added. The firewall is engine-turned.



Owner Ray Silva sits in red Naugahyde upholstered cockpit. Replacement parts were hard to come by, so Wilhelm had to shape original equipment to mint condition. Note louvers beneath door.





Dashboard features Auburn chromed gauge cluster; fuel pressure pump is also mounted. Note the gear shift knob.

Pickup is completely immaculate; note view of undercarriage illustrating '28 Ford axle, coil springs and sway bar.

Powerplant is '40 Merc bored to 276 cu. inches. Bored, stroked, mill uses Howard cam, Offy heads, Sharp manifold.

PART IV

OPEN GAS AND OPEN FUEL QUARTER

NATIONAL ENGINE RULES AND SPECIFICATIONS

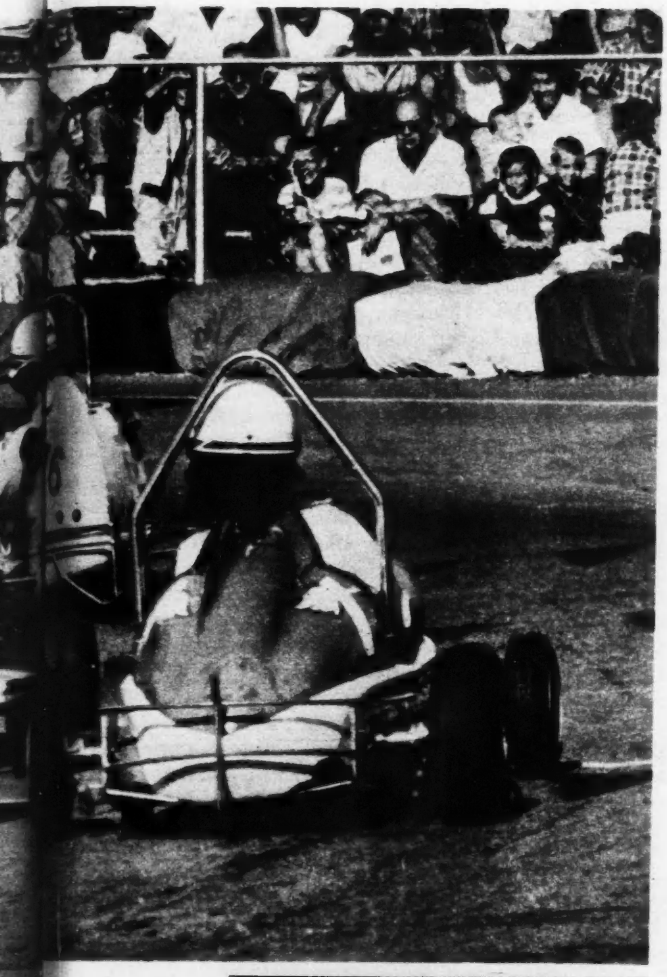
All engine classes must be flathead (side valve) type. No supercharging. No spraying of fuel into engine under pressure above atmospheric.

CLASS 3 (OPEN GAS)
Engine Maximum Size 8.0 cu. in.
No locked rear ends
Age—4 thru 15

CLASS 4 (OPEN FUEL)
Engine Maximum Size 8.5 cu. in.
Age—4 thru 15

MIDGET ENGINES

By Don Francisco



IN THE FIRST THREE articles in this four-part series devoted to the Continental AU7R engine as it is modified for quarter midget racing we describe the recommended modifications for a Novice engine and those permitted by the new National Rules for Class 1 (Stock) and Class 2 (Modified) engines. All this has finally led us to Class 3 (Open-Gas) and Class 4 (Open-Fuel) engines, which are the subject of this, the final installment of the series.

The National Rules state that a Class 3 engine (Open-Gas) must comply with the following specifications: Maximum displacement of 8.0 cubic inches. Class 4 engines (Open-Fuel) must comply with these specifications: A maximum of 8.3 cubic inches. The general rule that superchargers, injection of fuel under pressure higher than atmospheric, and overhead valves can't be used still applies but otherwise, that's it. The lid is off. Any camshaft, flywheel, valves, pistons, etc., may be used. The cylinder block, head, and any other parts may be modified in any way whatsoever as long as the engine's displacement doesn't exceed the specified maximum. These are the classes in which an engine builder can let his imagination run rampant. Open-Gas engines must, of course, be run on gasoline but alcohol (methanol only, no additives) may be used in Open-Fuel engines.

Alcohol is recognized as a superior fuel for competition engines because of its high anti-knock rating, high latent heat, and its cooling effect on an engine's combustion chamber surfaces. High anti-knock rating is of little importance in a Connie because it is a practical impossibility to raise the compression ratio of these engines to a value high enough to take advantage of the premium grades of gasoline now available, let alone alcohol.

Alcohol's high latent heat is of value in any engine because it cools the air inducted by the engine. Cooling the air in this manner makes it possible for the engine to induct a greater weight of fuel and air mixture than it could otherwise. As the weight of the charge inducted on each intake stroke increases, the horsepower output of the engine also increases. Alcohol's cooling effect on the surfaces of an engine's combustion chamber is due, in part, to the fact that the cylinders induct approximately 2¼ times as much of it as they would gasoline on each intake stroke.

As it isn't practical to stroke a Connie, it becomes necessary to bore its cylinder oversize if one is to take advantage of the maximum displacement allowed by the rules. And if a fellow plans to race in earnest, he had better take advantage of every bit of displacement he is allowed.

For a Class 3 engine, it is permissible to bore the cylinder .125-inch oversize to 2.250 inches. With the standard 2.000-inch stroke, this provides a total displacement of 7.952 cubic inches. This is a little below the

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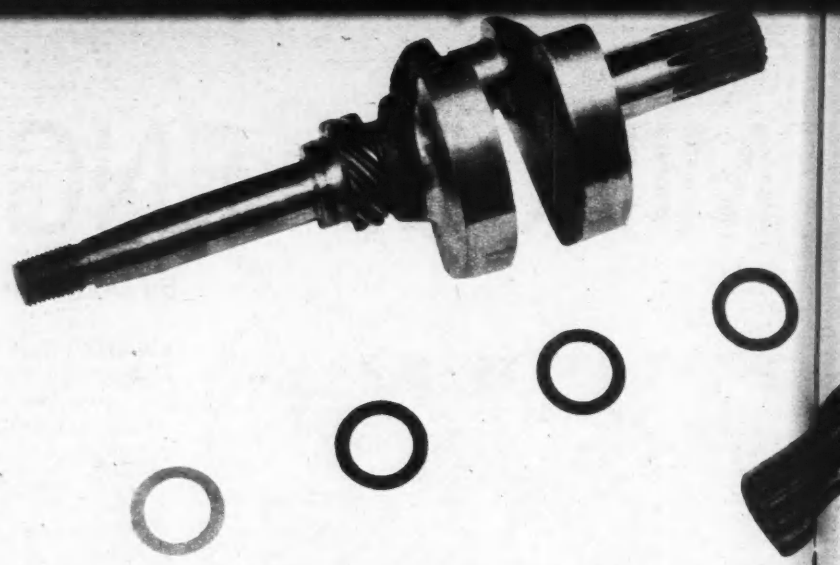
QUARTER MIDGET ENGINES



maximum of 8.000 inches to allow for a slight amount of wear. For a Class 4 engine the cylinder can be bored .173-inch oversize to 2.298 inches. This provides a displacement of 8.295 cubic inches, slightly under the maximum of 8.300 inches.

Pistons for the maximum bore diameters allowed for Class 3 and 4 engines are readily available from manufacturers of quarter midget engine parts. After installing one of them, check the clearance between the top surface of its head and the surface of the cylinder head when the piston is in top center position in the cylinder. This can be done by measuring from the top surface of the cylinder block to the top of the piston and adding the thickness of a head gasket to this measurement. If the piston rises above the surface of the block, subtract the distance from the block to the top of the piston from the gasket thickness. If the area of the cylinder head that is over the piston is recessed, measure the depth of the recess and add this to the piston-block-gasket measurement.

Clearance over the piston should be between .050-inch and .070-inch. Clearance less than .050-inch may allow the piston to hit the head when the engine is running at high crankshaft speeds. Clearance more than .070-inch will lower the engine's compression ratio unnecessarily.

Boring to the permissible maximum for each class provides additional advantages by decreasing the distances between the valve ports and the cylinders and effecting slight increases in compression ratio. Decreasing the distance between the valve ports and the cylinders helps the engine's breathing ability, and any boost in compression ratio raises the engine's power output. Everything within practical means to make the ratio as high as posible must be done if the engine is to develop its maximum potential horsepower. However, sacrifices in breathing ability must not be made to obtain a high ratio. A high ratio is not any good unless the engine can breathe well.

Lower end parts, including the crankshaft, connecting rod, bearings, gear case, and other related items, recommended for Class 3 and 4 engines are identical to those recommended for Class 2 engines. Class 3 and 4 rules permit a lighter flywheel to be used and a reground camshaft to be installed.

Most of the popular camshaft grinders are grinding shafts for Connie engines. Valve opening duration figures for these cams range from 280 to 300 degrees and some of them lift the valves as much as .300-in. Camshafts Kong uses are ground by Ed Winfield. One of Ed's two grinds provides an opening duration of 300 degrees for both the intake and exhaust valves and the other gives a duration of 284 degrees. Both of these shafts provide a comparatively low lift of .200-inch. Lash for both the intake and exhaust valves is .014-inch for both shafts.

Winfield says that a Connie must turn 8500 to 10,000 rpm if it is to take full advantage of a reground camshaft. Kong has proved this by gearing engines to allow them to reach maximum crankshaft speeds within this range. Each time he did this he noticed a definite improvement in performance. The only problem with running one of these engines at such high crank speeds is that it multiplies the possibility of failure of one of the engine's internal parts and the resultant destruction of the engine. However, the idea of racing is to get around the track more quickly than the competition. An occasional blown engine may be the price one must pay to be a hero in the Open-Gas or Open-Fuel divisions.

To get maximum results from a reground camshaft, Kong recommends that the same .875-inch ports and passages, 1-inch valve ports, and 1⅛-inch valves recommended for a Class 2 engine be used. The idea of using

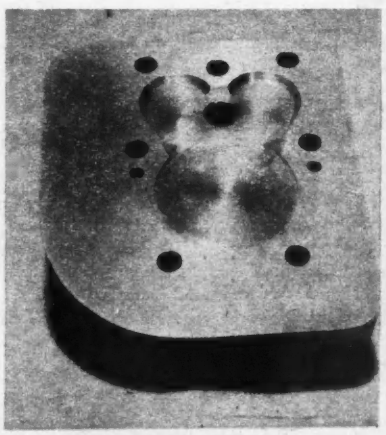
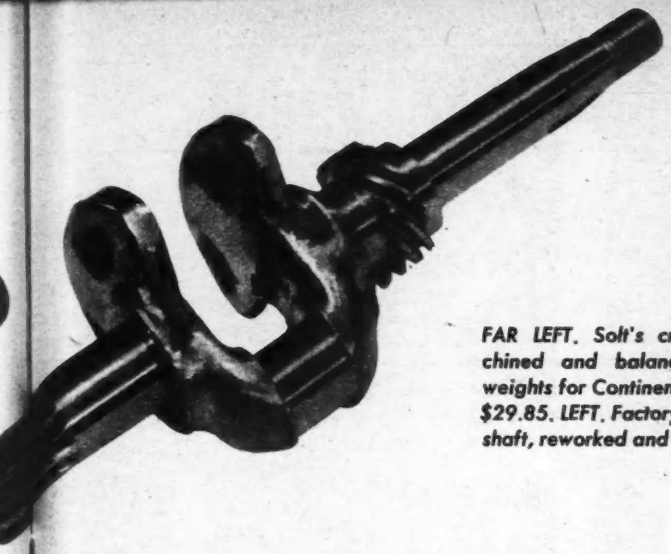


Photo above shows head which is counter-bored to accept a pop-up piston.



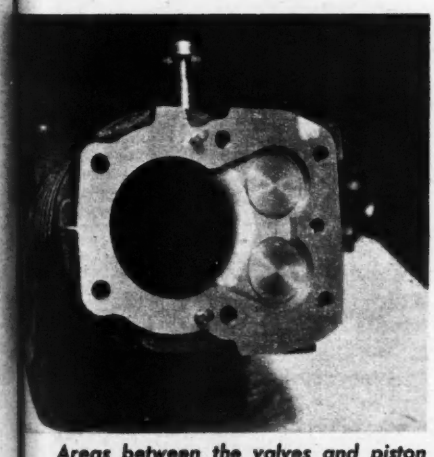
FAR LEFT. Solt's crankshaft is remachined and balanced with counterweights for Continental late type crank, $29.85. LEFT. Factory lightweight crankshaft, reworked and balanced by Kong.

ports and valves of these dimensions and not larger ones is that the fuel and air mixture that travels through an intake passage of a certain diameter must travel faster, or attain a higher velocity, than it would if the passage were larger.

High mixture velocity allows a cylinder to take a greater advantage of the longer valve timing provided by a reground camshaft. The reason for this is that the inertia created in the mixture by its velocity causes the mixture to continue to flow into the cylinder after the piston has reached the end of its intake stroke and started back up the cylinder on its compression stroke. This action exists to some extent with a stock camshaft but not so much as with a reground shaft because the reground shaft allows the valve to remain open a greater number of crankshaft degrees of rotation after the piston has reached the end of its intake stroke. An ideal camshaft, as far as intake valve closing time is concerned, would be one that closed the valve at the instant the pressure in the cylinder became great enough to stop the flow of fresh mixture into the cylinder. This is something that can't be achieved at all engine speeds because of the many variables involved.

Clearance between the top surfaces of the valve heads and the surface of the cylinder head above them must not be less than .050-inch when the valves are held in their full-open position by the camshaft that is to be used in the engine. Clearance less than this will cause the flow of fresh mixture into the cylinder and the flow of exhaust gases out of the cylinder to be restricted. Actually, Kong uses .100-inch clearance over the valves in most of the engines he builds and even more in some.

Ports and valves of the recommended diameters will match the engine's breathing system to a .750-inch Amal carburetor. When their throttle valve is in its full-open position, these carburetors provide an air passage of .4418 square inches between the atmosphere and the intake manifold. To maintain this area all the way to the cylinder the transfer passage between the valve ports and the cylinder must have a cross-sectional area of at least .4418 square inch. However, if the cylinder block and head were used for a Class 2 engine and they provided the correct transfer area, the area will be approximately .600 square inches after the cylinder has been bored for a Class 3 or 4 engine because of the larger bore diameter. If the block and head are new, or being used together for the first time, be sure the area is at least .600 square inch but do not make it any larger. Too large an area will make the combustion chamber larger than it needs to be and cause the compression ratio to be lower than it could be.



Areas between the valves and piston have been relieved for better breathing.

Amal carburetors are the most practical at the present time for either gas or fuel engines. They can be readily converted from gasoline to alcohol by changing their main metering jet and eliminating or reworking their fuel metering needle. The main metering jet determines full-throttle fuel mixtures; the needle controls part-throttle mixtures.

Full-throttle mixture must be richened for alcohol by installing a main metering jet that has an orifice approximately 2½ times the cross-sectional area of the orifice in a jet that would provide the correct mixture if gasoline were being used. Part-throttle mixtures are richened by reducing the diameter of the fuel needle or leaving it out of the carburetor. The engine will accelerate all right if the needle is left out of the carburetor but mixture will be excessively rich at idle and slightly higher speeds. The best method is to rework the needle. The portion of the needle that does the most restricting is the area near the upper end of its taper. This is the area that is nearest the discharge end of the needle jet when the throttle is closed.

It will take quite a bit of cut and try to determine exactly how large the needle should be for best performance, however, the needles are cheap and it doesn't matter if three or four of them are ruined before a good one is made. For a starting point, the needle's cross-sectional area should be reduced to approximately 30 percent of the area of the opening in the needle jet. This is a good figure from which to start fine tuning. For gasoline, the needle area is approximately 50 percent of that of the jet.

It may also be necessary to change the fuel inlet fitting on the carburetor's bowl. Some of these fittings, such as the one over which a hose is slipped and secured with a clamp, have adequate capacity and can be used with either alcohol or gasoline.

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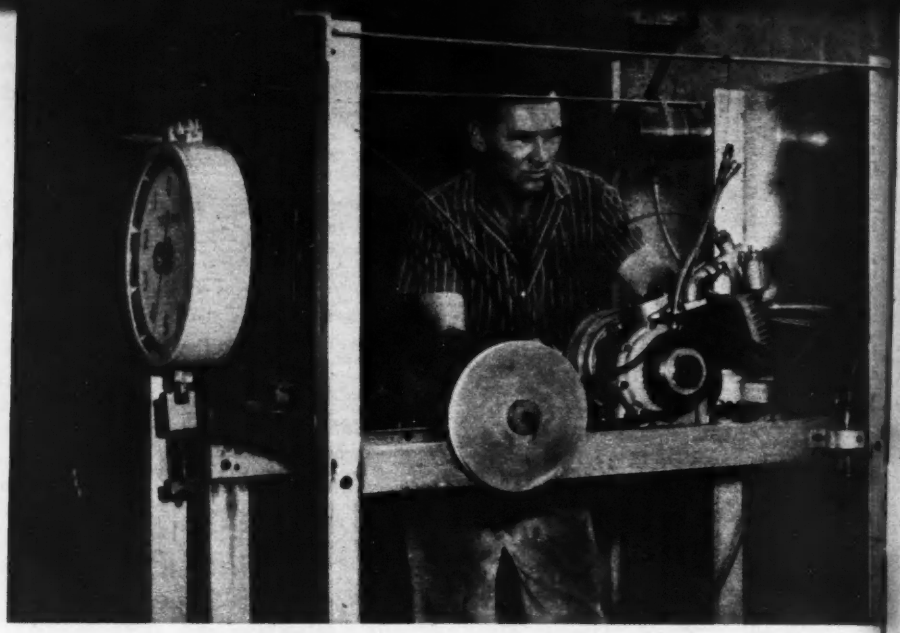
QUARTER MIDGET ENGINES



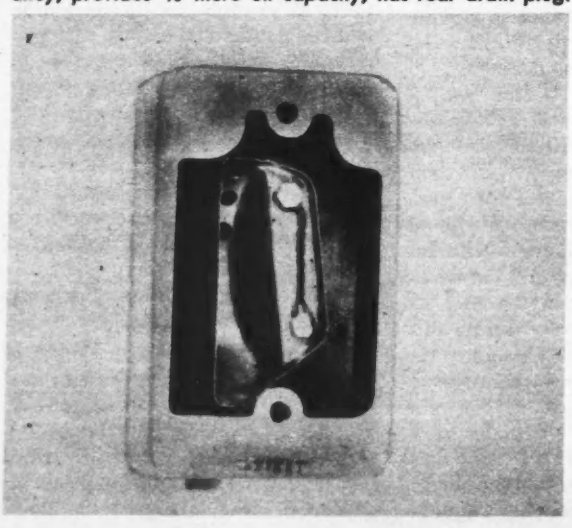
Kong ran engine on his dyno to check results and horsepower changes after each of the modifications performed.

A new idea that is catching on fairly rapidly is to operate an Amal carburetor without a float bowl. After the bowl has been removed, fuel feeds directly from the supply tank to the carburetor's discharge jet by gravity. To convert a carburetor in this manner it is necessary to make minor changes in it and replace its standard fuel needle with a longer needle that seats in the main metering jet to stop the flow of fuel into the carburetor's throat when the throttle valve is closed. An article that describes in detail how a carburetor is modified in this manner will soon appear in CAR CRAFT.

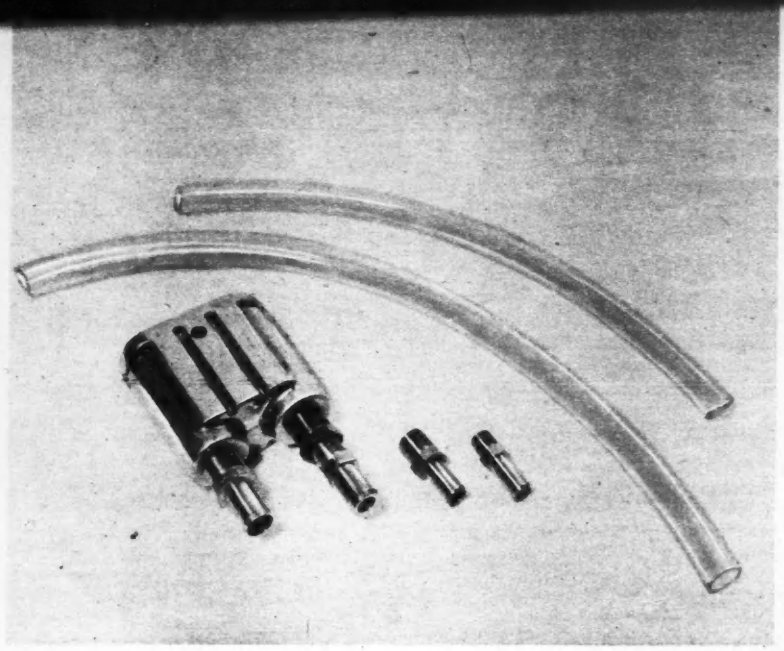
Kong recommends the carburetor be mounted in a downdraft position. Special intake manifolds designed for this and other positions are available. If you wish to use a float bowl on the carburetor, suitable fittings can be purchased from Amal parts suppliers for adapting a bowl to a throttle body when the body is in any practical position. In other words, if your carburetor is a sidedraft model, it can be easily converted to a downdraft by using the correct fitting between its bowl and throttle body. The bowl should be mounted on the left side of the carburetor so that the centrifugal force that acts on the fuel in it when the car is being driven through the turns will cause the fuel to flow toward the jet assembly in the carburetor's throttle body. This will minimize the possibility of the engine's running lean in turns.

For positive fuel flow to either a carburetor that has a bowl or one that has been converted to a bowlless operation, the fuel tank should be mounted so that its bottom is above the fuel level in a float bowl, or above the throttle body of the bowlless carburetor. Also, the tank should be on the left side of the carburetor, which will place it closer than the carburetor to the infield when the car is in turns. This will cause centrifugal force to move the fuel toward the carburetor while in the turns.

Scotty's oil pan is constructed of light-weight aluminum alloy, provides ⅓ more oil capacity, has rear drain plug.



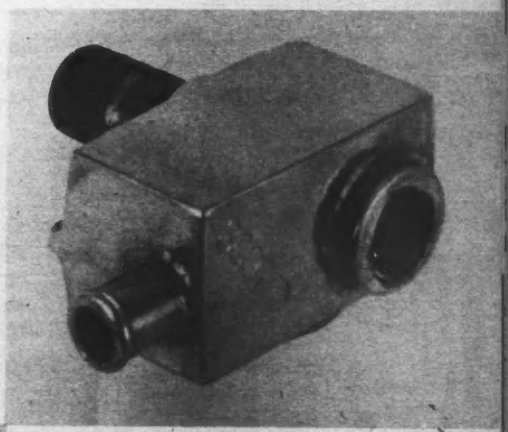
Solt breather assembly reduces crankcase pressure, avoids forcing oil past rings. With all parts and fittings, $6.95.



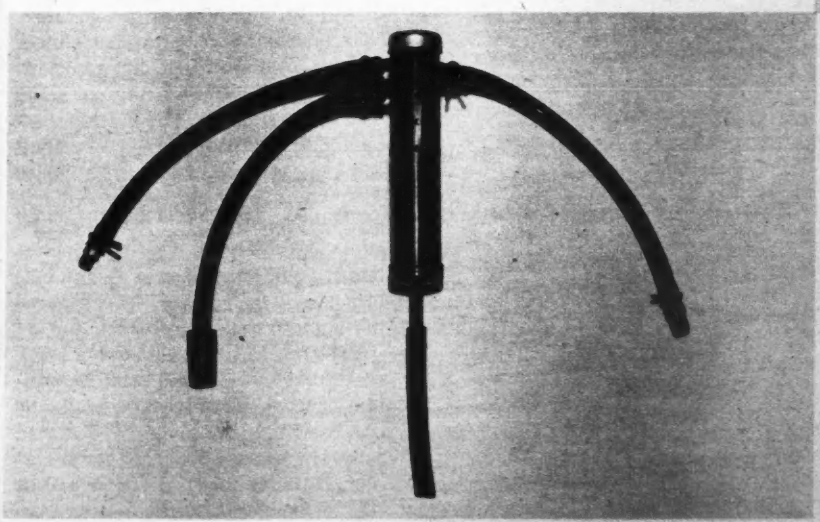
LEFT. Luther manufactures this dual breather for $4.00. Plastic hoses and special fittings are available at $3.00. ABOVE. Vern Gardner markets this English constructed sleeve in either .030 or .050 over sizes, chromed, unchromed. $6.30 unchromed, or $11.95 chromed.

Some provision must be made in the car's body to enable the engine to induct the comparatively cool air that surrounds the car rather than the heated air in the engine compartment. The reason for this is that an engine's power output is affected by the temperature of the air it inducts. The hotter the air, the lower the power output. One method of making outside air accessible to the carburetor is by cutting an opening in the car's tail above the carburetor. Another method, which seems as though it would be more effective, is to cut an opening in the tail above or beside the carburetor and then cover the opening with a scoop. Air gathered by the scoop when the car is running will be forced into the tail in the general area of the carburetor. For dirt track competition it would probably be a good idea to cover the opening with hardware cloth or similar material to prevent rocks and large chunks of dirt from entering the engine compartment.

Equally important as the rest of an engine's breathing system is its exhaust pipe. A pipe for a Connie of any class should have an inside diameter approximately the same but not smaller than the exhaust port in the block and be 18 or 24 inches long. It should not have any sharp bends or restrictions throughout its length.



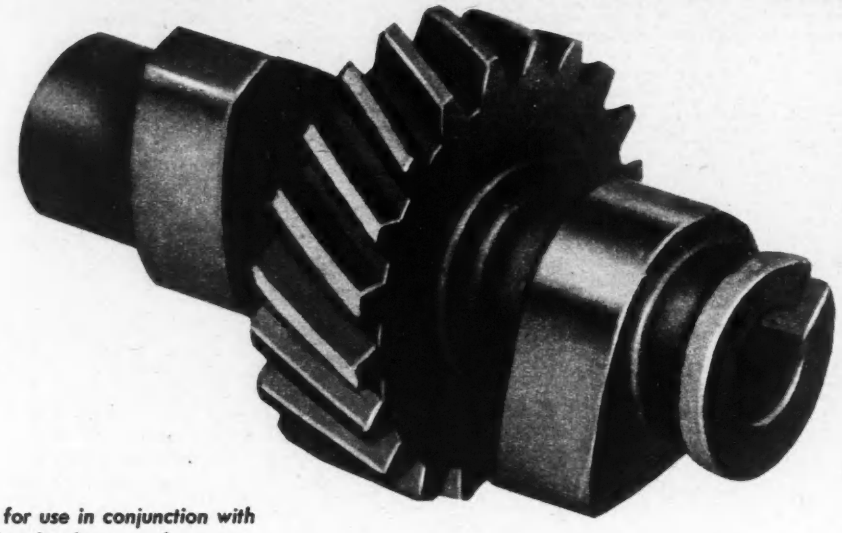
Scotty's crankcase breather features interior baffles, attaches to side of block. Scavenger hose can be placed in any position desired. Any oil that might enter is readily drained off.



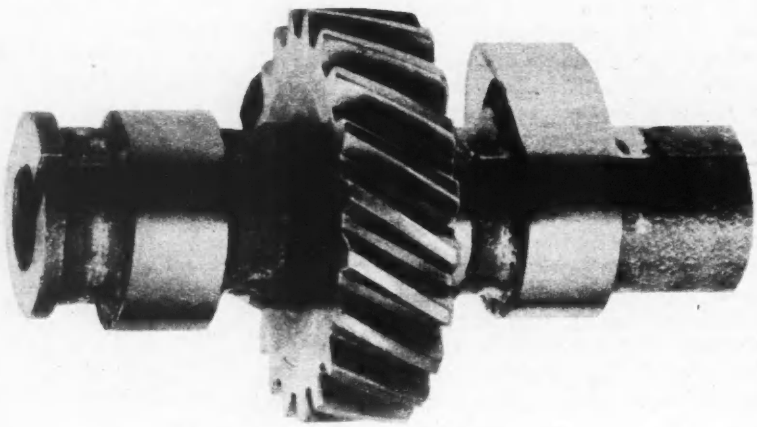
Triple-threat breather bearing Vern Gardner's name is used to relieve the valve chamber, gearbox, and crankcase. Plastic hoses used with brass fittings for valve, crank chambers with plumbers fittings for gearbox.

CONTINUED

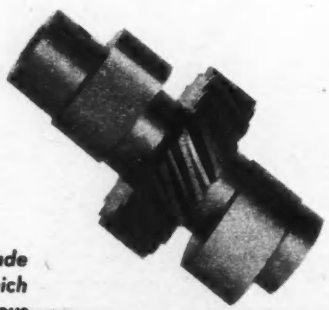
QUARTER MIDGET ENGINES



Continental's new high-lift cam, for use in conjunction with heavier valve springs, modified head to boost performance.



An 'A' engine camshaft with low speed torque and high revving characteristics for top performance by Dempsey Wilson.



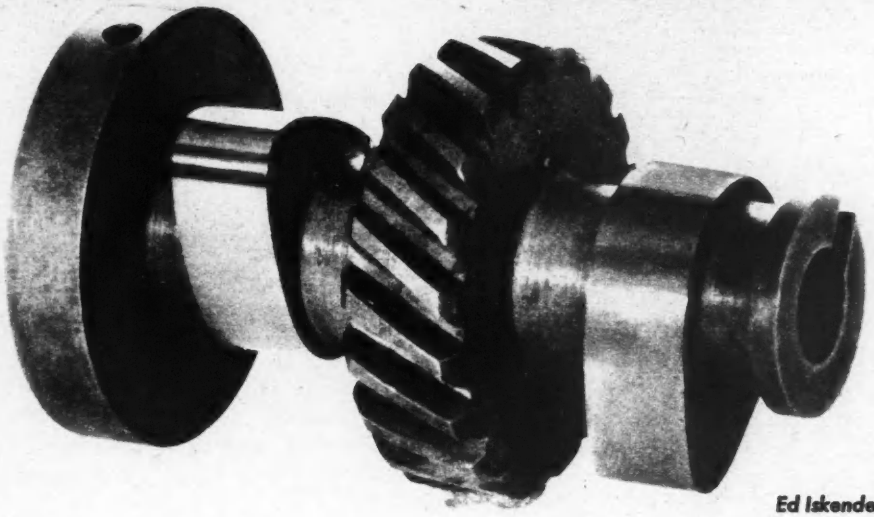
Solt's competition camshaft is made from a heat-treated alloy steel which is hardened and ground to various specifications for racing. Price: $24.95.

Kong makes his pipes from steel tubing that has an inside diameter of ⅝-inch. This is a popular size, making it easy to find.

A good special battery ignition system will fire an A-Gas or AA-Fuel engine without any problem at all. As a starting point the ignition should be adjusted so that it fires the spark plug when the piston it between .250 and .312-inch from the end of its compression stroke. It isn't posible to give a specific timing setting that will work with all engines because the shape of the combustion chamber and other details of engine design that affect the amount of ignition lead an engine needs vary so much from one engine to another.

The battery for the ignition system should be brought up to a fully-charged condition before each meet and it's a good idea to have a spare battery for days when the car must do a lot of running. The battery used for the first part of the day's running can be replaced with the spare somewhere near the middle of the program to insure that there will be adequate voltage in the ignition system for the system's coil. A low battery can be the cause of several hard-to-diagnose tuning problems.

Kong recommends Champion J-63T spark plugs for engines that are burning clean. A clean-burning engine is one in which the rings have seated properly and the fuel mixture is correct. If the engine is oiling, a J-6J or J-7J, which are a little hotter than

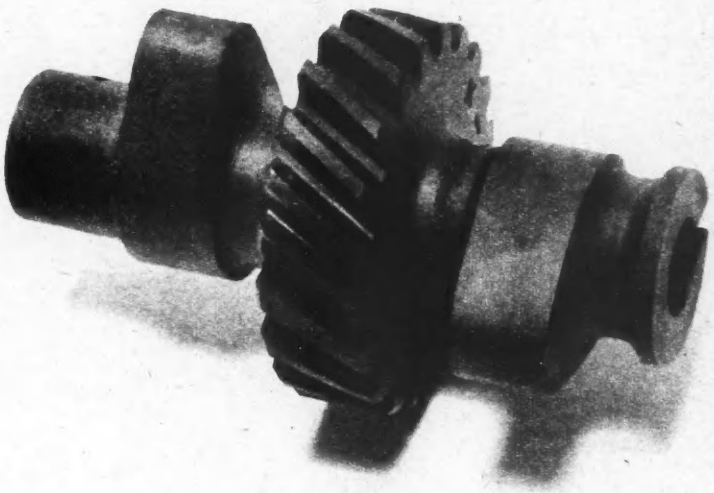


Ed Iskenderian Racing Cams has this 'A' engine camshaft. Hardened lobes for dependability, high uplift for speed.

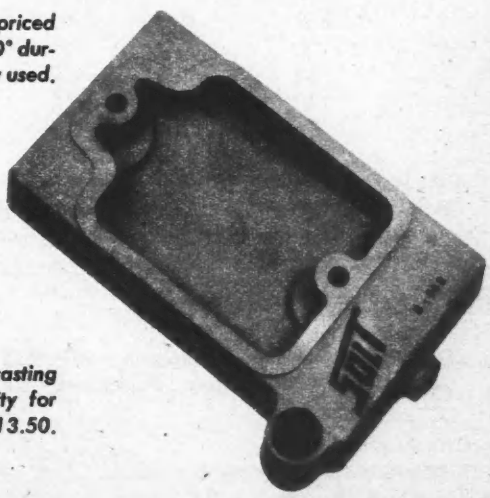
those recommended for a clean-burning engine, should do the trick. Don't confuse a wet combustion chamber caused by excessive fuel with a chamber wet from excessive oil. A fuel-wet chamber can be caused by either a flooding carburetor or an excessively rich fuel mixture. Regardless of which spark plug is used, its center electrode insulator will have a light brown color and be dry if it is of the correct heat range for the engine. Quite a bit of running is sometimes required for the insulator to color.

It's important that the gear ratio between the engine's output shaft and the wheel it drives be correct. If the ratio is too high, the engine will not be able to turn the rpms it should to deliver its maximum power. If the ratio is too low, the engine will over-rev and possibly destroy itself. The correct ratio for any given track depends on the track itself but for an example, Class 1 and 2 engines that run on the Glendale, California, track where Kong does most of his running are geared approximately 1.8 to 1. The usual combination is a 15-tooth engine sprocket and a 27-tooth axle sprocket. Class 3 and 4 engines are usually geared about 2.1 to 1 to enable them to run at higher rpm where they can take better advantage of their reground camshaft. A typical sprocket setup would be a 13-tooth on the engine and a 28-tooth on the axle.

Any quarter midget engine, regard-



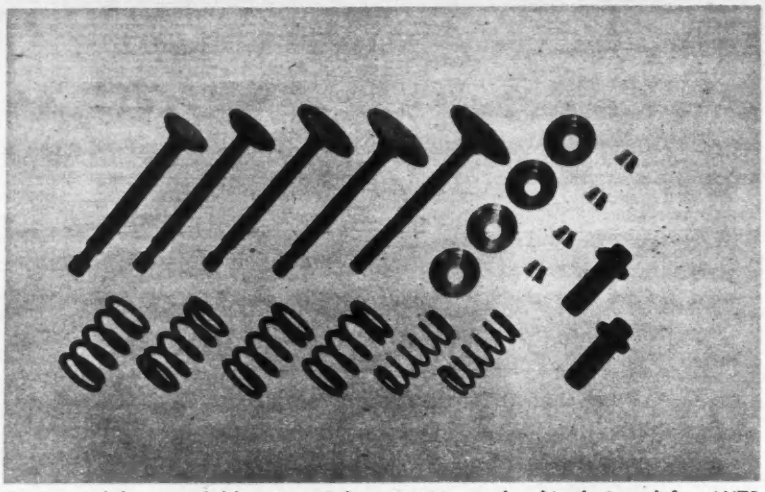
K&H Cams manufacture this cam priced at $18.75. 7 grinds with 270°-300° duration available. German iron alloy used.



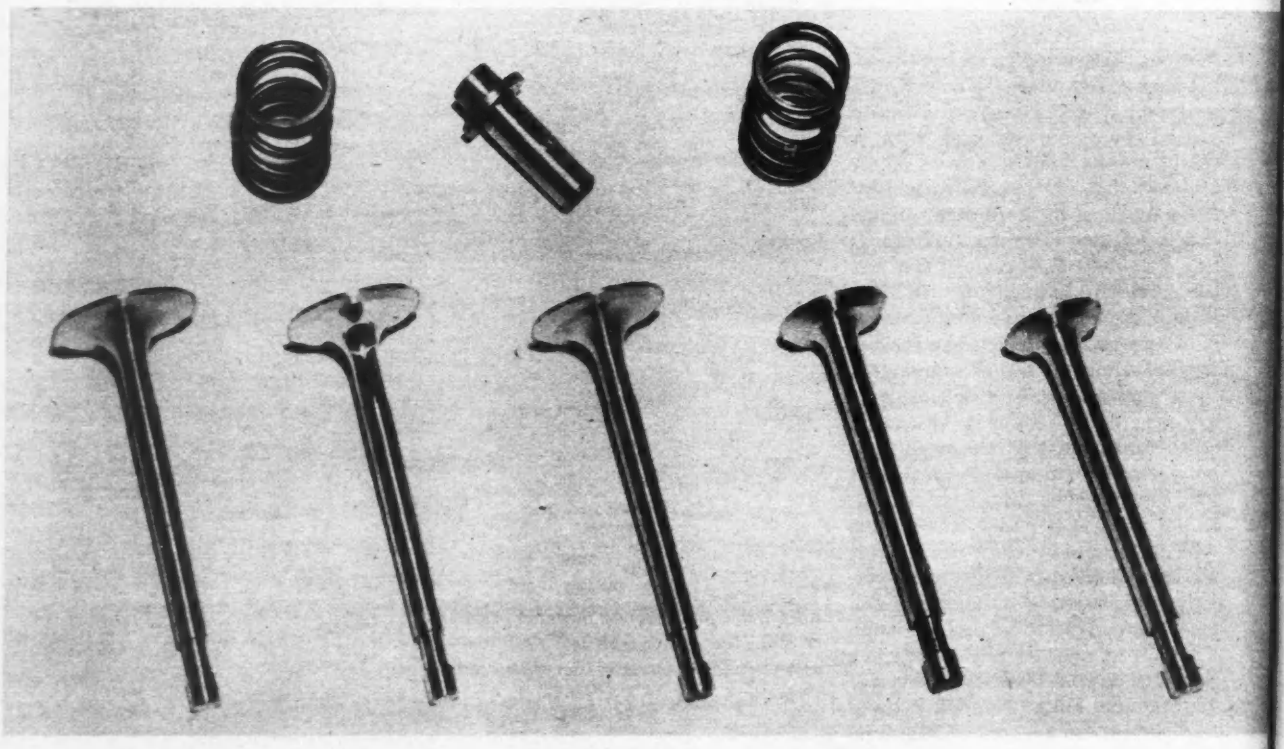
Solt oil pan is aluminum alloy casting with over ⅓ added oil capacity for cooler oil in long races. Price: $13.50.

CONTINUED

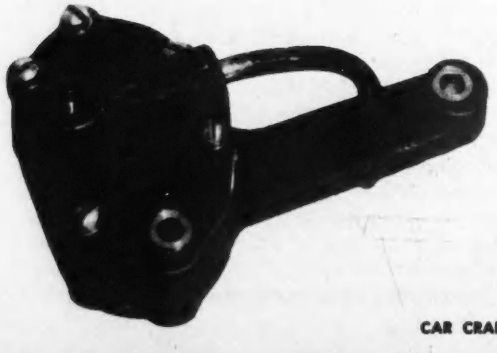
QUARTER MIDGET ENGINES



Continental has available a special competition valve kit designed for AU7R.



This valve kit by Vern Gardner features English valves for both intake and exhaust work. Non-magnetic material used in making. Kit price: $11.95. Premium 1 1/8" size — $3.95.



Solt oil pump has alloy casting with heat-treated steel gears with ground bearing surface, mounted on Oilite bushings.

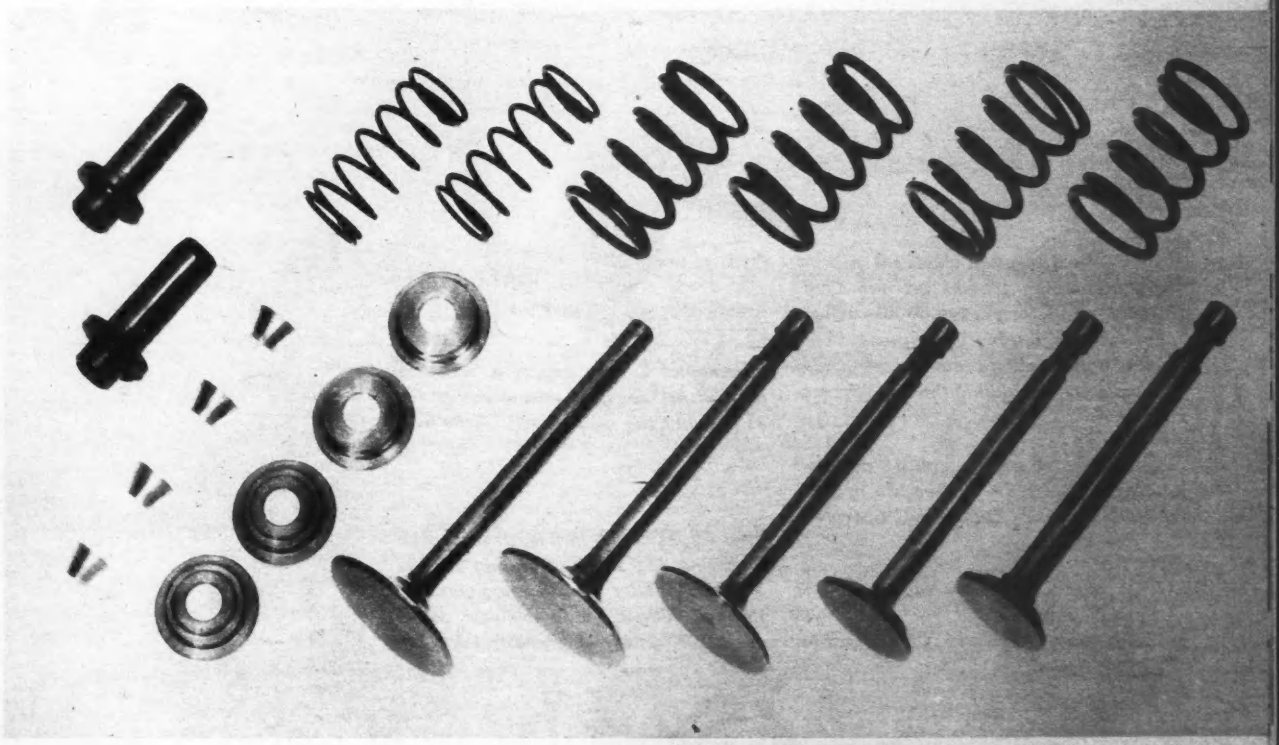
less of its class, should be mounted in its chassis so that its output shaft is parallel with the car's rear axle and its drive sprocket is in line with the sprocket on the axle. The shafts must be in line and the sprockets parallel to allow the chain that connects them to run freely, without side bend or tightness. Also, the chain must be adjusted correctly. It must have at least ⅛-inch up and down slack midway between the sprockets. A chain that doesn't run freely or is too tight can absorb a large percentage of the engine's power output.

The chain should be lubricated frequently so that all its joints will remain free. If the car is to be operated on an asphalt track, oil the chain, run the engine in the pit area, and then wipe the chain with a cloth to remove any excess oil remaining on it before driving the car onto the track. This will minimize the amount of oil the chain will drip onto the track's surface.

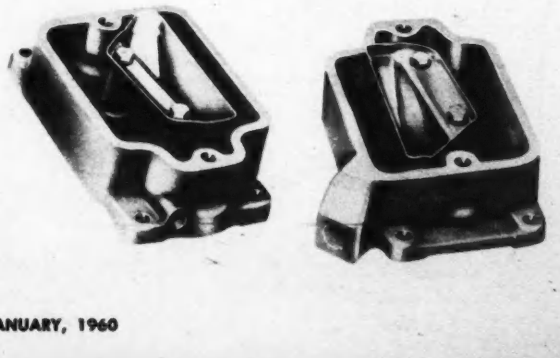
Owners of quarter midgets that are ahead of the pack week after week don't stop working on their car when the car is ready to run. This is really just the beginning for them. They keep constant check on the condition of their engine and chassis and replace or adjust parts of either as soon as they show signs of wear. Most of them follow an engine maintenance program that includes checking the engine's lower end, ignition breaker point clearance, and timing each week; installing new piston rings each third to fifth week; and replacing other parts when they start to show signs of becoming tired.

Let's face it—quarter midget racing has become highly competitive. A car that is to have even the slightest chance of being a trophy winner must always be in sharp condition!

Class	Bore	Stroke	Displacement	Allowed Displacement
Novice	2.125	2.000	7.093	7.093
1	2.155	2.000	7.2948	7.3
2	2.185	2.000	7.4993	7.5
3	2.250	2.000	7.9521	8.0
4	2.298	2.000	8.2950	8.3



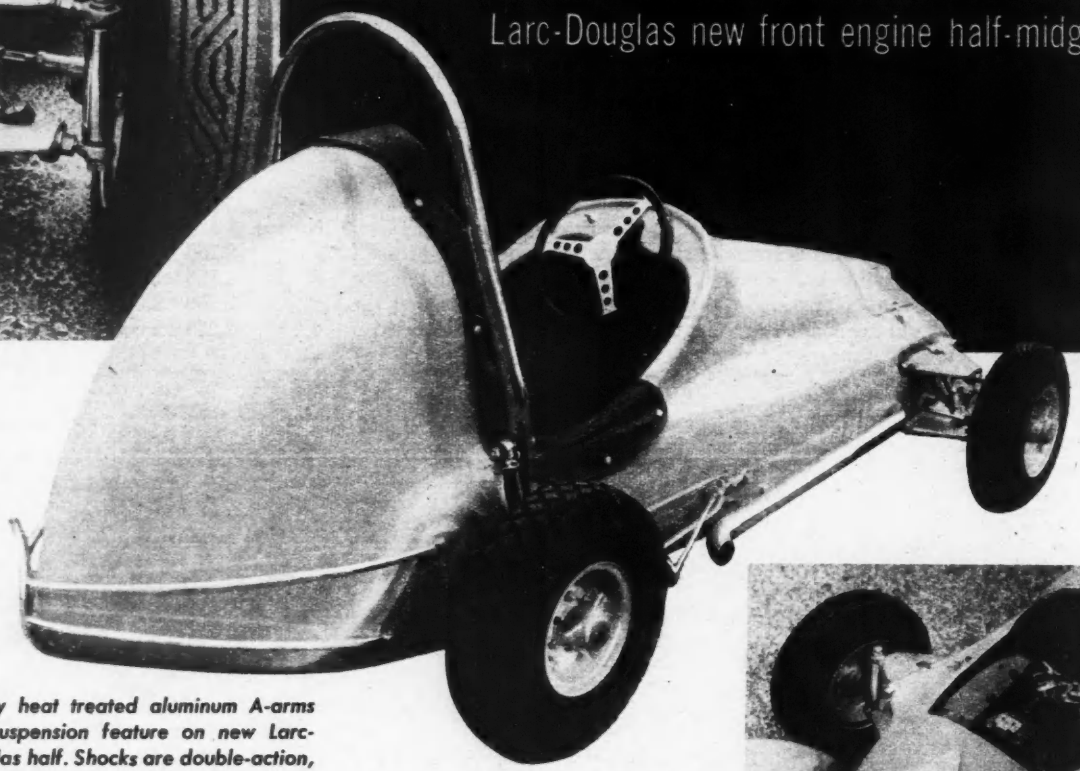
Solt competition valve kit features premium quality valves 1 ⅛" diameter head, ¼" diameter stem, 30 degrees seating angle. Valve guides fully machined and ground, matched.



Continental oil pan may be obtained with the drain hole in either of two locations, for flexibility in designing QM's.

FROM THE EAST:

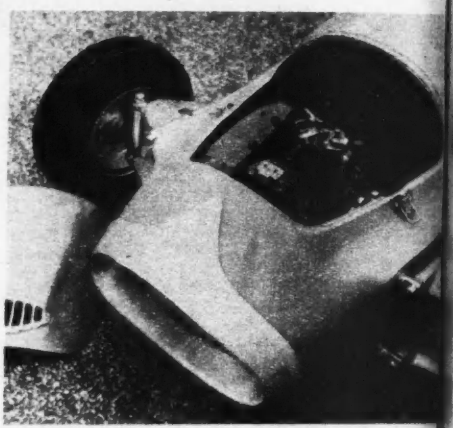
Larc-Douglas new front engine half-midget



Sturdy heat treated aluminum A-arms are suspension feature on new Larc-Douglas half. Shocks are double-action, coil springs inside. Three-piece fiberglass body is monococque construction, completely eliminating the metal frame.

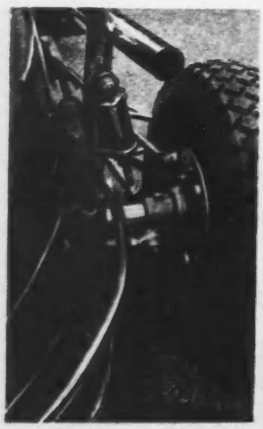
Rear end coil sprung; can be adjusted to transfer weight. Brakes are hydraulically internal expanding operated.

View of cockpit shows jack-shaft and chain arrangement for rear wheel drive. Metal guard removed for photographs.



Continental 3 h.p. engine is mounted in front. An aluminum nose-piece serves as nerf-bumper and directs air to mill.

Even adults can fit in this racer. Seated in car is Joe Kutch, standing is Carl Schiller, builder and manufacturer of the half-midget. The wheelbase of the car is 52 inches, while the tread is 35.

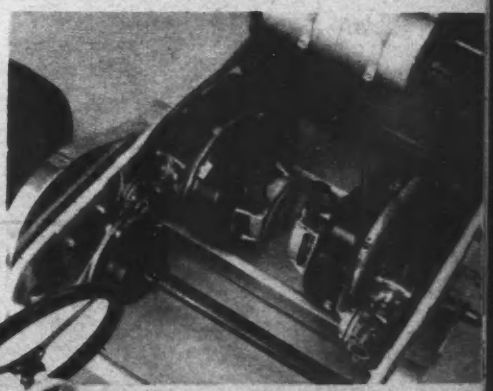


FROM THE WEST:

Tubular space frame for new Moss Cart

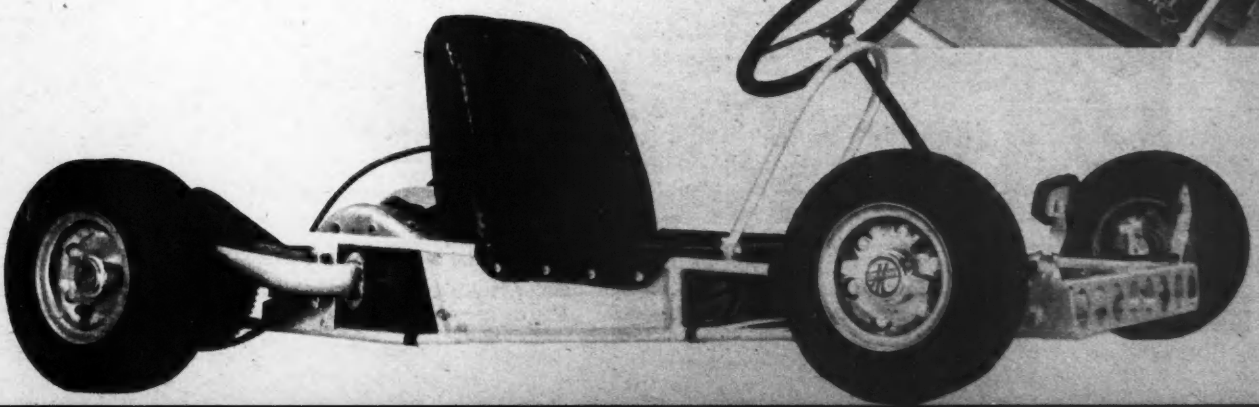
Bill Moss, a pioneer in the half-midget field, has combined his talents with Indy designer George Salih for new car.

Race-proven rack and pinion steering gear is used. Polished ribbed aluminum panel serves as floor board on cart.

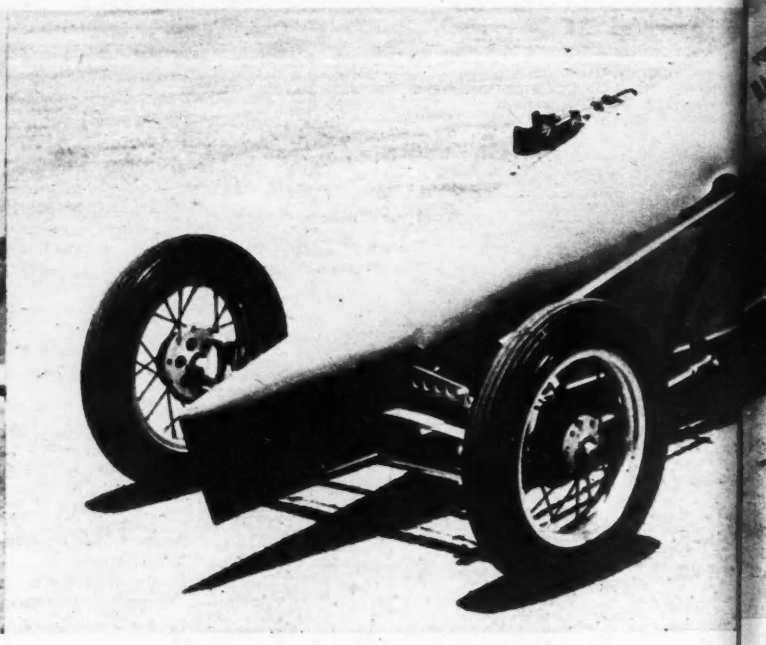


Tubular space frame constructed chassis has live rear axle. Brakes are internal expanding units. Plush upholstery covers adjustable seat. Pedals mounted at extreme frame end for driver comfort.

Twin racing engines mounted as low in frame as possible. Space will take larger sized engines. Weight distribution is changed by 'wedging' frame. Gas tank is mounted to seat by straps.

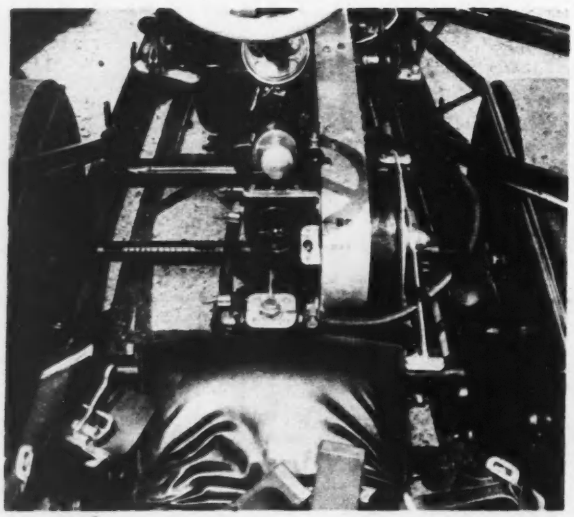


H-D DRAGSTER

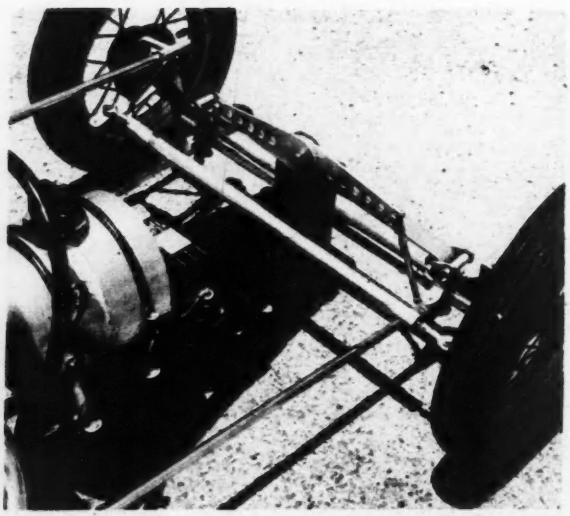


55 cubic inch motorcycle engine—good for century mark in the quarter

Apparently the '58 Harley-Davidson mill in Roger Hardcastle's dragster feels that it belongs on two wheels, as witnessed by the tail-stand at drag strip start. Mt. View, Calif. is home for builder; Dud Perkins MC shop sponsors machine.



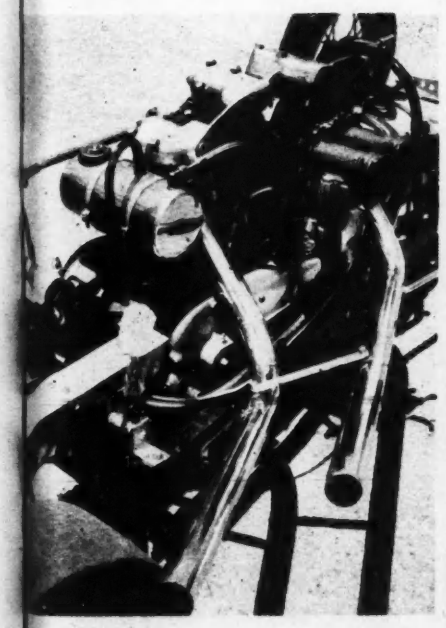
Driver squeezes between narrow 26" rear tread into leather covered seat. Fuel pressure pump and 'kill' button are in easy reach of driver. H-D 4-speed transmission is employed.

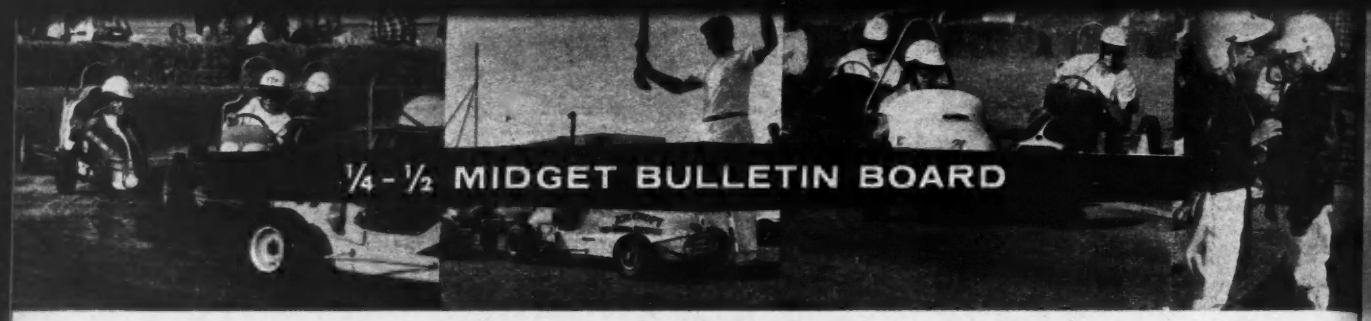


Box channel frame of 72" wheelbase was constructed by Jarvis Mfg. Co.; front end has 36" tread, leaf spring suspension on special axle, homemade spindles and friction shocks.

Photos by Bud Lang

Potent 55 cubic in. H-D engine has 10:1 compression, stock bore, stroke, Herbert cams. Ports are polished, enlarged. Two MR4 carbs used, as is Wico magneto.





¼ - ½ MIDGET BULLETIN BOARD

California ace, Richard Shoji, is all smiles as Miss Carol Scott awards him kiss and trophy for capturing "Open Class" main at West Liberty, Ohio. Shoji drove Baugh Spl. Butch Steward, veteran West Virginia driver placed second in Ohio event.

1960 NATIONALS

Many quarter and half midget enthusiasts have requested a listing regarding this year's forthcoming national events. The following is an un-official schedule of national race meets slated for the 1960 quarter and half midget racing season. All events are subject to change – but will be confirmed well in advance of actual race dates in "Bulletin Board." The dates of each event are not available at this time, so only the month that the event will take place has been listed.

Quarter Midget National Championships 1960:

April	*Hacienda National*, Las Vegas, Nevada
August	*Tulsa National*, Tulsa, Oklahoma
August	*Pacific Northwest National*, Portland, Oregon
September	*Eastern States National*, Langhorne, Pennsylvania
November	*Race of the Champions*, Las Vegas, Nevada
December	*Arizona National*, Phoenix, Arizona
December	*Tangerine National*, Orlando, Florida

Half Midget National Championships 1960:

December	*Hacienda Half Midget National*, Las Vegas, Nevada

Other quarter and half midget associations wishing to announce their forthcoming 1960 Nationals, State or Regional Championships, can do so by jotting down all particulars, dates, etc., and sending them to "Bulletin Board," Car Craft Magazine, 5959 Hollywood Boulevard, Los Angeles 28, California.

INVERTED STARTS FOR NATIONALS

One of the hottest topics among quarter midget circles today is the question concerning initiating inverted starts at all major national race meets. With straight up starting (fastest qualifiers to the front rows) little chance is left for the slower cars and drivers positioned in the rear starting rows. With the fastest qualifier in the pole position about his only considered competitor is the car and driver starting next to him. The remaining competitors are further handicapped by the fact that they must concern themselves with racing traffic as the event progresses. True, the pole position is a deserving award for the car and driver that can turn in the fastest one lap qualifying time for a classification – but basically it does not make for exciting racing as does handicap starts whereby the fastest cars are placed to the rear, while slower cars are given an equalizer of front row starting positions. If inverted starts are initiated in quarter midget racing, then a substantial and deserving award will have to be set aside for fastest qualifying time in each racing division in an effort to keep entrants from backing off on speeds to assure them a slow time and a front row starting position. This surely could be easily handled by awarding identical trophies for fast times as compared to main event wins. Valuable merchandise awards is another answer to making it worthwhile to take a crack at fast time. Many associations staging National events in 1960 are contemplating the inverted starting arrangements – "Bulletin Board" would like to know your opinion. Drop a card in the mail today regarding your comments on the matter – we would be more than pleased to publish the results.–Ed.

FRONT ENGINE HALF MIDGET

Prolific Larc-Douglas, Division of Schiller Engineering, Great Neck, New York, announces their newly designed, front engine half midget race car. The scaled-down speedster features such engineering as individual A-arm front suspension controlled by double-action shock absorbers, internal two-wheel positive rear brakes, robust roll bar, metal nose-piece as nerf bar and air intake, front engine placement with chain drive to rear wheels. For complete details and pictorial on car – see page 56.

TRACK LISTINGS

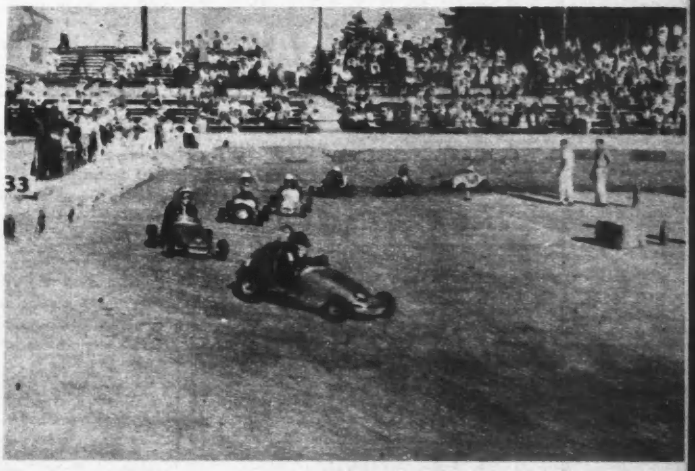
DALLAS, TEXAS — Dallas Quarter Midget Racing Association

TRACK: asphalt. RACE DATE: Sunday afternoon – 2:00 P.M. QUALIFYING: 2:00 P.M. GENERAL RULES AND REGULATIONS: All cars must be equipped with following safety features; approved roll bar, safety seat belt, bumper front and rear, positive one wheel brake, outside ignition switch, fully extended metal firewall, cut-away belly pan exposing underneath side of engine compartment. DRIVER: approved crash helmet, goggles, leather gloves and long sleeved protective apparel. ENGINE SPECIFICATIONS: "Stock" – (drivers: Junior 4-8, Senior 9-13) 7.3 cubic inches; following modifications to engine allowed – carburetor, oil dipper, removal of governor, muffler, flywheel screen, pulley, advance stator plate, bored exhaust port, valve guides, special springs, keepers as long as stock size valve heads are retained, flywheel 95% manufactured weight, any type ignition, venting gearbox, drilling oil pan, grooving rod for lubrication, balancing, one wheel drive. "Modified" (drivers 8-12) 7.5 cubic inches; all modifications allowed except the following – no alteration to stock camshaft. "Open Gas" (drivers 10-15) 8 cubic inches; all modifications allowed. TRACK LOCATIONS: 3900 West Illinois, Dallas, Texas.

PACIFIC NORTHWEST NATIONALS PLAY TO 10,000 SPECTATORS AS 122 QUARTER MIDGETS INAUGURATE NEW ALPENROSE BOWL

Portland's new Alpenrose Quarter Midget Bowl — America's finest. 72-foot straights, enormous width, bleachers surround perimeter.

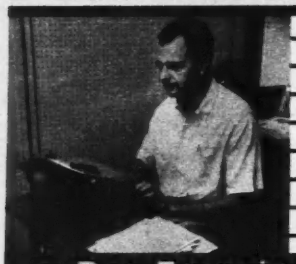
Bud Meadows, Portland's "Quarter Midget Racing" weekly television sponsor presents Alpenrose Dairy owner, Henry Cadonau, with award. Benevolent Cadonau built $25,000 racing bowl for Portland activity; states he just likes kids.



Lots of room to move around is feature of new all-paved bowl. Dan Carruther of Anaheim, Calif., sets the pace in "Fuel" main event; brother Jim close behind. Note wide groove cars take at corner.

"Mr. Quarter Midget", Vern Gardner of Oakland, Calif., chats with Judy Melzer and Marit Meadows (r) who won "Gas" main; was '58 champ.

WHAT'S YOUR PROBLEM?



By Don Francisco

LIGHT, MEDIUM, OR HEAVY POWER

Dear Don:

I want to install a late model V8 engine in my '50 Ford but I don't know which make I should use. The most popular engines for these swaps seem to be Chevys, Oldsmobiles, and Chryslers. Which of these would you recommend?

— Charles King
Salem, Oregon

Chevy engines have the advantages for engine swaps of being small in external dimensions and light in weight. They have the disadvantage of a small cubic inch displacement that restricts their torque output at low crankshaft speeds. This means that generous use must be made of transmission gears during city driving. On the highway they will cruise nicely at high speeds without giving trouble. They respond extremely well to normal modification procedures.

An Olds is in the medium weight and external size class. Cubic inch displacement varies, depending on the model of the engine, but it is adequate for good performance at both low and high speeds. It, too, will respond well to normal reworking procedures.

Hemispherical combustion chamber Chryslers are in the heavy weight class and are large in external dimensions. Their size and weight make them undesirable for swaps in many chassis. They have ample displacement for good performance at any speed and are the most ideal of all engines for all-out conversions.

MODERNIZED RODS FOR STOVE-BOLT

Dear Don:

I have a '51 Chevrolet six-cylinder engine that I am building for street driving and drag racing. I'm going to raise its compression ratio with special pistons and I am afraid of the thick babbit bearings in its connecting rods. Can I have special heavy-duty babbits installed in the rods?

— Pete Gunnell
Oklahoma City, Oklahoma

Connecting rods for six-cylinder Chevrolet engines built for 1953 and later are fitted with precision insert bearings. These bearings are far superior to the thick integral bearings in your '51 rods. They have a very thin layer of bearing material on a steel back. One of the advantages of a thin layer of bearing material is that it is less susceptible to being destroyed by any pounding action it may receive from the crankpin.

You can install precision insert bearings in your rods if you have the rod big-ends bored for them. Rods reworked in this manner are available on an exchange basis from automobile parts stores.

FAULTY ASSEMBLY

Dear Don:

I recently bought a quarter midget for my 10-year-old son. It has a Continental B-Gas engine that has worn out three camshafts in three weekends of racing. In each instance the lobe for the intake valve has worn badly. Also, several of the driving teeth on the camshafts have shown heavy wear. The lobe for the exhaust valve shows hardly any signs of wear on any of the cams.

Could there be something wrong with the engine's block? Each time I have disassembled the engine to install a new camshaft I've been careful to replace its parts in the same position they were in originally.

— Charles Glouster
Pendleton, Texas

The only thing that could wear camshafts as your engine is wearing them is excessive pressure on the intake valve's stem when the valve is near or at its wide-open position. In a Connie this could be the result of one of two possible conditions: the valve's head could be hitting the cylinder head, or the coils of its spring could be bottoming. Either of these conditions would cause the pressure on the valve stem and its tappet to be so high that the cam lobe would wear rapidly. The reason some of the teeth on the cam's drive gear also wear is that the pressure on them also becomes high when the pressure on the lobe is high.

Interference between a valve head and the cylinder head is easily detected because the valve and the cylinder head will have shiny spots at the points of contact. In extreme conditions it is possible for a valve to pound a depression in the head. Check for coil bottoming by turning the crankshaft to the point where the valve is in its full-open position and then measure the clearance between the coils with the blade of a thickness gauge. This should be done with a good camshaft in the engine and with the correct lash clearance between the valve's stem and its tappet so that the valve will be lifted the full amount. There should be at least .020-inch clearance between two or three of the coils.

Interference between a valve and the cylinder head can be corrected by removing material from the head in the interference area or by installing a different head that has more clearance. Coil bottoming can be corrected by machining the spring seat in the cylinder block to provide a longer space for the spring, or by seating the valve deeper in the block to move its retainer washer lock groove farther from the spring seat on the block, or by installing a different valve on which the retainer lock groove is farther from the valve's head.

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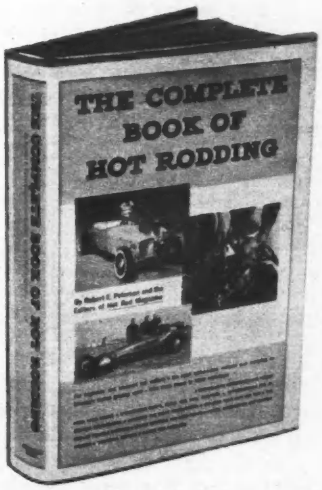

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FIN KITS

Dear George:

I'm planning on buying either a '52 or '53 Ford in the next couple of months. I would like to rework the rear end—fins and taillights—similar to the treatment you gave Bill Carr's '55 Chevy. Is it possible to purchase a kit for this type of installation?

—Harold Cellen
Mattoon, Ill.

No, I'm sorry, but there are no such kits available. What you are prescribing is a large amount of work on any car. This prohibits any sort of kit or marketable item that can be used to accomplish the fin and taillight treatment to Carr's Chev. It is necessary that an accomplished body man do the work due to its radical nature. I will tell you, however, how to perform this restyle in case you have the talented torch required. First, use the fin section from a '58 Studebaker (the metal unit) and install this fin on the fender in the position that you desire. Trim it to perfection to insure correct contour with the fender. Weld the fin in position and lead it over to best possible smoothness. Then, take red Lucite and cut and form it to the taillight shape which you have designed by the angle and degree of slant you have given the fin. Install the taillight and finish the work by sanding and priming to paint.

WHAT SHOULD I DO?

Dear George:

I have a '51 Merc, but I don't know what I should do about customizing it. I have some ideas as to what I would like, but I don't want to ruin the car in case these ideas don't work out. The things I want to do are: install new taillights; install new grille and bumpers; adding Impala top scoop and steering wheel. What should I do?

—Craig Platts,
Whittier, Calif.

I'm glad you have ideas, but you didn't include them in your letter, so we'll just have to give our opinion of what you might do. First, for taillights, I suggest you raise the rear fenders on your Merc and install a set of frenched '59 Chevrolet lenses. This would give a truly original concept. A big factor in choosing a grille is in the price. I suggest a straight bar grille which can be procured at any auto accessory shop. You can then individualize it a little by adding blades or flipper bars on the top sections. Don't forget about chrome bullets, either. This might really be a different approach to a custom grille. As for scoops in the top, shy away from the Chev units. Just about everyone turns to this part when they're in search of a top scoop. Why not try dual scoops, using the fender scoops (right and left) from a '58 Cadillac. These are as simple to install as the Chev scoop. For a steering wheel, again any late model car's deep-dish wheel will suffice. It's all in design and matching for it to fit your steering column.

NO SPACE EFFECT

Dear George:

I have a '51 Ford tudor with a perfect body. I would like to do a conservative customizing job without laying out a lot of cash. I have had a little bit of experience doing small repair jobs with epoxy, but will have to pay for any welding or brazing work.

I'm wondering whether I can fill the center of the hood with a putty made by mixing chopped glass fibers with epoxy, or whether I should use narrow strips of glass cloth for reinforcement. Will engine heat affect the epoxy after it is set?

Will a grille shell from a '49-'51 Canadian Meteor fit my grille opening without alteration? Also, what would you suggest in the way of rear end styling? I favor simplicity without any space-rocket effect. If I can get it done cheaply enough I would like to have the windsplits removed and fit either some plain round taillights or '51 Packard lights in the windsplits. What do you think would give me a neat and simple conversion? How would you go about fitting a rolled pan to the rear of this car? Finally, I have heard that a chemical can be used to remove plating so that grille parts, headlight rims, etc., will take primer. Can you tell me what the chemical is? I'll sneak in one more question. Can a decent paint job be done with enamel?

That exhausts my questions. I would appreciate any answers you can give me.

—Dick Smith
Iowa City, Iowa

Our shop doesn't do any fiberglass work. You might be able to get some advice from one of the large fiberglass custom kit manufacturers. However, my personal answer would be not to use the fiberglass for this particular modification, as I don't think it will be able to hold-up under rough use and stresses which are applied to the hood. I would suggest you use a bull-nose chrome strip if you are limited for money, otherwise braze the holes closed and lead-in the hood channel.

You can use the '51 grille in your Ford, as this is a simple swap. The Meteor is Canada's version of the Ford and they both use the same basic shells and parts. I think this is a unique installation, even though there are many Fords similar to yours with the same grille swap performed.

You should weld and mold the windsplits. I think you have an original idea in the '51 Packard taillights. These will look exceptionally nice.

We've carried stores on rolling a rear pan in a previous issue. Basically it consists of welding a panel beneath the rear body panels and rolling it downward beneath the car. Then you trim and fit side panels to give it a true rolled effect. The only way plating can be removed is by stripping same at a chrome shop.

ALLIGATOR HOOD

Dear George:

We have a '36 Chev coupe which we are rebuilding. The hood on this model opens from the sides and we would like to know if this could be changed to open from the front end. Are there any hood panels which we could substitute?

—Dave Waters,
Rich Carlson,
Willie Carlson,
Melson, B.C., Canada

The forward raising hood is called the Alligator hood. Granted, this is better than your side opening hood, but you three are in for a great deal of modification if you undertake this project. There are also several different methods to accomplish this modification. Two of these routes you can follow are: first, weld the hood and side pieces into one solid piece. Lead it over the give the smoothest possible surface and appearance. Then, assuming you have removed the hinges, etc., attach the hood to the Chevy by using Dzus fasteners which can be obtained at surplus stores and some auto supply houses. This is extremely simple, but is not an answer to your front-opening request. But, this is the easiest way. To remove the hood, you simply lift the entire unit off.

Another way to obtain the forward opening hood assembly is to use '41 Studebaker hood unit, hinges and all, found in some wrecking yard. You can then install this on your Chevy. There'll be much metalwork in trimming and fitting, plus attaching it to the Chev. I'm afraid there is no really easy way to achieve the forward opening hood.

RESTYLED '48 FORD

Dear George:

Two problems are confronting me in my first attempt at customizing. The first concerns the installation of a Corvette grille in my '48 Ford coupe. I want to leave the cavity stock. Will the installation give me any trouble?

The second problem is with taillights. I want to install '59 Cadillac lenses. Can it be done? If not, do you have any suggestions?

—Roddy Rodgers,
Henderson, Texas

The Corvette grille can be cut and fitted into the stock grille cavity on your '48 Ford, Roddy. Simply remove the middle bars of your present grille assembly. Leave the top bar as a base point to work from with measurements, etc., and to act as a brace for your latch plate. I think this will be a nice installation.

Since this is your first attempt at customizing, I don't want you to be too discouraged, so I think you had better forget about the Caddy taillights. Sure, they'll make a real neat installation, but the time, work, and money invested might be more than you'll want to spend. Therefore, I suggest you turn to simple bolt-on lenses which lend the same custom appeal as the Cad lights would. This light is the Nash Ambassador unit. It needs slight alteration to match your fender contour, but other than that it is simply a bolt-on unit. You might be interested to know that this particular light assembly is as yet practically unknown to customizers, but will probably become extremely popular in the near future.

COMING EVENTS

NHRA DRAG SCHEDULES

Little Rock, Ark. — 1st & 3rd Sun. Mid-South Timing Assn.
Holtville, Calif. — 3rd Sun. Imperial Valley Timing Assn.
Inyokern, Calif. — 3rd Sun. Dust Devils Auto Club, Inc.
Eureka, Calif. — 4th Sun. Humboldt Timing Assn.
Madera, Calif. — 2nd Sun. Madera Clutchers, Inc.
Oroville, Calif. — 2nd & 4th Sun. Oroville Clutchers.
Palmdale, Calif. — 4th Sun. Antelope Valley Timing Assn.
Redding, Calif. — 3rd Sun. Shasta Roadsters, Inc.
San Luis Obispo, Calif. — 3rd Sun. San Luis Obispo Co. Timing Assn.
Santa Maria, Calif. — 1st Sun. Dragons, Inc.
Grand Junction, Colo. — 12/20; Grand Junction Hot Rod Council.
Davie, Fla. — 2nd & 4th Sun. Broward Auto Club.
Kissimmee, Fla. — 1st & 3rd Sun. Central Fla. Timing Assn.
Lake Wales, Fla. — 2nd Sun. Triangle Timing Assn.
Miami, Fla. — 1st & 3rd Sun. So. Florida Timing Assn.
Sebastian, Fla. — 2nd & 4th Sun. Asphalt Angels Hot Rod Club.
Venice, Fla. — 1st Sun. Vagabonds, Inc.
Parsons, Kans. — 2nd & 4th Sun. Coffeyville-Parsons Timing Assn.
Hammond, La. — 4th Sun. Ponchatoula Jaycees.
Opelousas, La. — 1st & 3rd Sun. Pelican State Auto Club.
Detroit, Mich. — Nightly & weekends. Detroit Dragway.
Minneapolis, Minn. — ev. Sun. Twin City Optimist Club Timing Assn.
Greenville, Miss. — 1st & 3rd Sun. Delta Angels, Greenville AFB.
Belgrade, Mont. — 2nd Sun. Bozeman Pacers.
Butte, Mont. — 3rd Sun. Silver Bow Timing Assn.
Henderson, Nev. — 2nd & 4th Sun. Industrial City Timing Assn.
Vineland, N. J. — ev. Sunday. Vineland Speedway.
Hobbs, N. M. — 1st Sun. Charleteers Auto Club.
Roswell, N. M. — 2nd Sun. Dusters Auto Club, Walker AFB.
Elizabeth City, N. C. — 2nd & 4th Sun. Eastern Carolina Drivers Assn.
Cincinnati, Ohio — ev. Sun. Beechmont Dragway.
Dayton, Ohio — ev. Sun. Montgomery Co. Timing Assn.
Tulsa, Okla. — 1st & 3rd Sun. Tulsa Timing Assn.
The Dalles, Ore. — 3rd Sun. Mid-Columbia Timing Assn.
York, Pa. — ev. Sun. South Penn Hot Rod Council.
Pelion, S. C. — ev. Sat. Palmetto Racing Affiliates.
Caddo Mills, Texas — 1st Sun. North Texas Timing Assn.
Salt Lake City, Utah — 1st & 3rd Sun. Salt Lake Racing Assn.
Petersburg, Va. — 10/10 & ev. other Sat. Eastern Dragway, Inc.
Roanoke, Va. — ev. Sun. Roanoke Dragsters, Inc.
Mt. Vernon, Wash. — ev. other Sun. Bayview Timing Assn.
Deseronto, Ont. — 10/4 & ev. other Sun. Peaceful Pacers.

SHOWS

Oakland, Calif. — Feb. 19-28; 12th Annual National Roadster Show, Exposition Building, 918 Fallon St.
Ft. Wayne, Ind. — Dec. 11, 12, 13; Rod & Custom Show; Memorial Coliseum.
Mullica Hills, N. J. — Dec. 4, 5, 6; 3rd Annual Garden State Autorama, sponsored by Paulsboro Road Rods, at club garage at routes 45 & 77.

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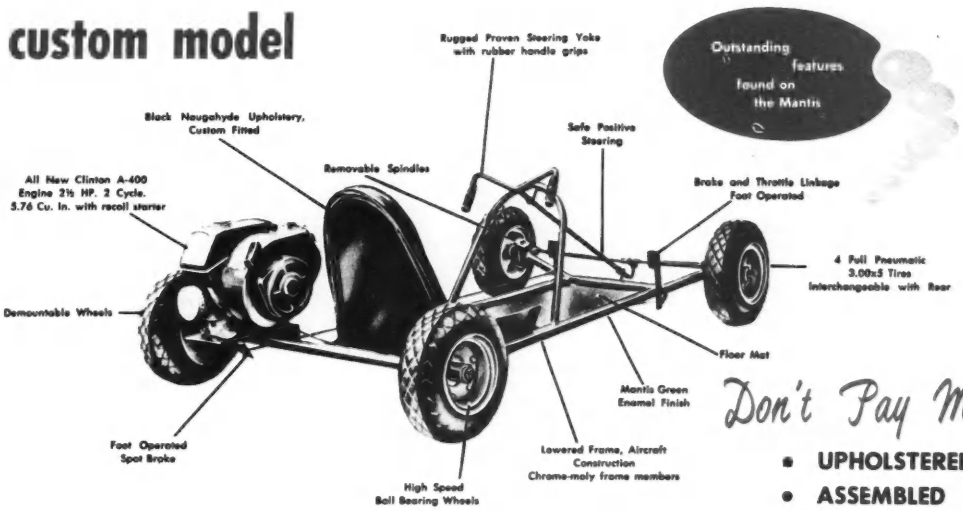

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